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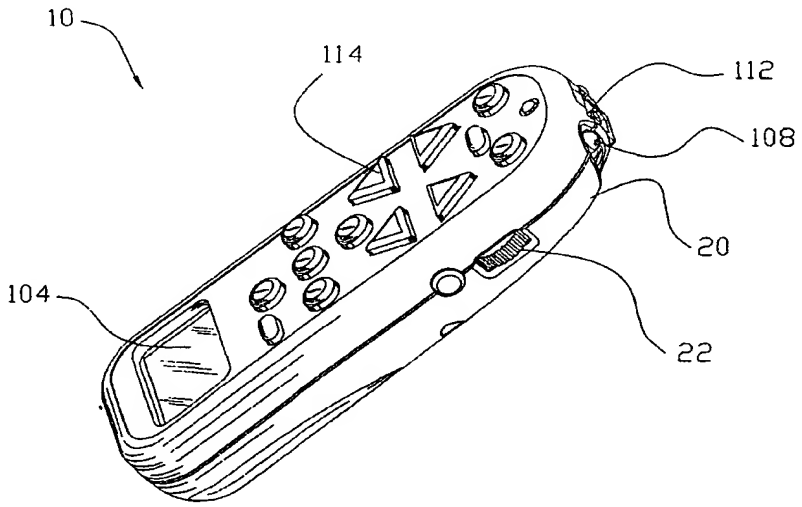
(54) Title: STATE-BASED REMOTE CONTROL SYSTEM



(57) Abstract: A state-based remote control system for providing efficient and simple operation of a plurality of electronic devices as a coordinated system based upon an overall task. The state-based remote control system includes a housing, a keypad in communication with an electronic system contained within the housing, and a communication device in communication with the electronic system for communicating with external electronic devices. The electronic system monitors the buttons selected by a user to determine the state of all external electronic devices that are to be controlled. When the user selects a task (e.g. watch television), the electronic system automatically determines the actions required to achieve the desired task based upon the current state of the external electronic devices. After the task has been fulfilled, the electronic system updates the data to reflect the modified state of the external electronic devices.

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SPECIFICATION

TITLE: STATE-BASED REMOTE CONTROL SYSTEM

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to remote control devices and more specifically it relates to a state-based remote control system for providing efficient and simple operation of a plurality of electronic devices as a coordinated system based upon an overall task.

Description of the Prior Art

Remote control devices have been in use for years. Remote control devices are utilized to operate various external electronic devices including but not limited to televisions, stereos, receivers, VCRs, DVD players, CD players, amplifiers, equalizers, tape players, cable units, lighting, window shades and other electronic devices. A conventional remote control is typically comprised of a housing structure, a keypad within the housing structure for entering commands by the user, electronic circuitry within the housing structure connected to the keypad, and a transmitter electrically connected to the electronic circuitry for transmitting a control signal to an electronic device to be operated.

The user depresses one or more buttons upon the keypad when a desired operation of a specific electronic device is desired. For example, if the user desires to turn the power off to a VCR, the user will depress the power button upon the remote control which transmits a "power off" control signal that is detected by the VCR resulting in the VCR turning off.

Because of the multiple electronic devices currently available within many homes and businesses today, a relatively new type of remote control is utilized to allow for the control of a plurality of electronic devices commonly referred to as a "universal remote control." Most universal remote controls have "selector buttons" that are associated with the specific electronic device to be controlled by the remote control (i.e. television, VCR, DVD player, etc.).

A few universal remote controls allow for "macros" to be programmed into the remote control so that when a preprogrammed button is depressed a string of commands is executed as programmed. For example, if the user desires to operate their television along with the stereo receiving input from the television, the user would program a macro for turning on the

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television, turning on the stereo and then switching the input to the stereo for receiving audio input from the television. The main problem with conventional universal remote controls is that they are unable to detect or monitor the state of a particular electronic device. Another problem with conventional universal remote controls is that when a preprogrammed macro is executed, an undesirable effect can occur wherein electronic devices that are desired to be turned on are actually turned off. For example, if the television is already on but the stereo is tuned to a local radio station and the user selects the above macro the power to the television would actually be turned off instead of maintained on.

Recently, universal remote controls have been developed that communicate via radio frequency (RF) with external sensing devices that are connected to the electronic devices for detecting the current state of the electronic device. Other remote controls are able to receive and display information from the electronic device they control such as displaying the name of a radio station on a display of the remote. These devices are relatively expensive and again difficult to utilize for the average consumer.

The main problem with conventional remote control devices is that they are typically unable to know the particular "state" of an electronic device they are to control, particularly universal remote controls. A further problem with conventional remote controls that do allow for advanced configuration thereof to compensate for the various states of the electronic device is that they are often times difficult for the average consumer to utilize. Another problem with conventional remote control devices is that they force consumers to view their electronic devices "individually" (i.e. turn television on, turn stereo on, switch audio input on stereo to television) rather than in broad "tasks" (e.g. watch television).

While these devices may be suitable for the particular purpose to which they address, they are not as suitable for providing efficient and simple operation of a plurality of electronic devices as a coordinated system based upon an overall task. Conventional remote controls are typically programmed to operate only one electronic device. Conventional universal remote controls are typically programmed to operate electronic devices "individually" or are difficult to configure to automated control of a plurality of electronic devices.

In these respects, the state-based remote control system according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus primarily developed for the purpose of providing

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efficient and simple operation of a plurality of electronic devices as a coordinated system based upon an overall task.

SUMMARY OF THE INVENTION

In view of the foregoing disadvantages inherent in the known types of remote controls now present in the prior art, the present invention provides a new state-based remote control system construction wherein the same can be utilized for providing efficient and simple operation of a plurality of electronic devices as a coordinated system based upon an overall task.

The general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new state-based remote control system that has many of the advantages of the remote controls mentioned heretofore and many novel features that result in a new state-based remote control system which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art remote controls, either alone or in any combination thereof.

To attain this, the present invention generally comprises a housing, a keypad in communication with an electronic system contained within the housing, and a communication device in communication with the electronic system for communicating with external electronic devices. The electronic system constantly monitors the buttons selected by a user to determine the state of all external electronic devices that are to be controlled. When the user selects a task (e.g. watch television), the electronic system automatically determines the actions required to achieve the desired task based upon the current state of the external electronic devices. After the task has been fulfilled, the electronic system updates the data to reflect the modified state of the external electronic devices.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and that will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description

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or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of the description and should not be regarded as limiting.

A primary object of the present invention is to provide a state-based remote control system that will overcome the shortcomings of the prior art devices.

A second object is to provide a state-based remote control system for providing efficient and simple operation of a plurality of electronic devices as a coordinated system based upon an overall task.

Another object is to provide an active media content access system for allowing a user to mark one or more television programs for receiving additional information via a global computer network at a later time related to the marked programs.

Another object is to provide a state-based remote control system that provides for intuitive operation of a plurality of electronic devices.

An additional object is to provide a state-based remote control system that allows for the simple operation of a plurality of electronic devices based upon an overall "task" instead of specific controls for specific electronic devices.

A further object is to provide a state-based remote control system that is simple and easy to utilize for the average consumer.

Another object is to provide a state-based remote control system that does not require significant programming prior to usage.

An additional object is to provide a state-based remote control system that is affordable.

Another object is to provide an active media content access system that provides an effective method for advertisers to communicate with consumers interested in their products and services.

An additional object is to provide an active media content access system that provides an effective method for television stations to communicate with consumers interested in their television programming regarding specific programming.

A further object is to provide an active media content access system that allows businesses to forward additional information to consumers via e-mail, web sites, and mailings regarding subject matter a consumer has specifically shown interest in.

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Another object is to provide an active media content access system that allows businesses to efficiently market their products and services to a group of consumers showing an interest in their products or services without wasting valuable resources promoting items to non-interested consumers.

A further object is to provide an active media content access system that does not require any changes to existing broadcast infrastructure thereby requiring no changes to the media content for operation thereof.

Another object is to provide a remote control multimedia content listing system for providing an updated content listing of various media within a remote control.

Another object is to provide an active media content access system that will work with existing electronic device within a room without changes to the devices.

Another object is to provide a remote control multimedia content listing system for providing an updated content listing of various media within a remote control.

Another object is to provide a remote control multimedia content listing system that allows a user to easily program media listings contained within their home.

An additional object is to provide a remote control multimedia content listing system that is easy to utilize.

A further object is to provide a remote control multimedia content listing system that allows an individual to quickly configure a universal remote control for various types of media including but not limited to movies, music and television programming.

A further object is to provide an online remote control configuration system for efficiently programming a remote control to recognize a plurality of external electronic devices.

Another object is to provide an online remote control configuration system that allows for a simple electronic configuration.

An additional object is to provide an online remote control configuration system that does not require a universal remote control to store hundreds of different signal codes that are never utilized.

A further object is to provide an online remote control configuration system that allows an individual to quickly configure a universal remote control.

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A further object is to provide an online remote control configuration system that is able to upload a relatively complex configuration (e.g. "watch television") than is currently possible with current universals.

A further object is to provide an online remote control configuration system that allows customization of a remote control but for the specific system in which they are interconnected (e.g. so that they are effectively a system).

A further object is to provide an online remote control configuration system that can be configured to how the user desires to utilize electronic devices.

A further object is to provide a passive media content access system for passively monitoring a user's interaction with media content for providing automatic and intuitive control for a home entertainment system.

Another object is to provide a passive media content access system that provides an effective method for advertisers to communicate with consumers potentially interested in their products and services.

An additional object is to provide a passive media content access system that provides an effective method for television stations to communicate with consumers interested in their television programming regarding specific programming.

A further object is to provide a passive media content access system that allows businesses to forward additional information to consumers via e-mail, web sites, and mailings regarding subject matter a consumer has specifically shown interest in.

Another object is to provide a passive media content access system that allows businesses to efficiently market their products and services to a group of consumers having an interest in their products or services without wasting valuable resources promoting items to non-interested consumers.

A further object is to provide a passive media content access system that does not require any changes to existing broadcast infrastructure thereby requiring no changes to the media content for operation thereof.

Another object is to provide a passive media content access system that will work with existing electronic devices within a room without changes to the devices.

An additional object is to provide a passive media content access system that automatically records a user's interaction with media content.

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Another object is to provide a passive media content access system that allows for automatic data collection by advertisers and other businesses.

A further object is to provide a passive media content access system that intuitively and automatically sets alarms to notify a user of favorite media programming.

Another object is to provide a passive media content access system that works in conjunction with various types of media including but not limited to television and radio.

A further object is to provide a passive media content access system that intuitively and automatically takes appropriate action to ensure that a user is able to view and/or listen to their favorite programming.

Other objects and advantages of the present invention will become obvious to the reader and it is intended that these objects and advantages are within the scope of the present invention.

To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Various other objects, features and attendant advantages of the present invention will become fully appreciated as the same becomes better understood when considered in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the several views, and wherein:

FIG. 1 is an upper perspective view of the present invention.

FIG. 2 is a side view of the present invention.

FIG. 3 is a side view of the present invention illustrating electronic circuitry within.

FIG. 4 is a block diagram illustrating the communications between the present invention and a plurality of external electronic devices.

FIG. 5 is a block diagram illustrating the electronic system of the present invention electrically connected to the power source and in communication with the external electronic devices.

FIG. 6 is a block diagram illustrating the electronic system along with a plurality of accessory devices connected to thereof.

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FIG. 7 is a flowchart illustrating the initial programming of the present invention prior to usage.

FIG. 8 is a flowchart illustrating the modification of the state of external electronic devices not in the desired state as desired within a task to be performed.

FIG. 9 is a flowchart illustrating an action performed upon one or more external devices and modifying the memory within the electronic system accordingly.

FIG. 10 is a flowchart illustrating the modification of the memory within the electronic system to reflect the changed state of the external electronic devices after a task or an action has been completed.

FIGS. 11a – b is a flowchart providing an example task for watching television being executed.

FIG. 12 is a block diagram of the present invention in communication with the control station via a global computer network wherein the electronic system is directly connected to an intermediary computer system.

FIG. 13 is a block diagram of the present invention in communication with the control station directly via a global computer network without utilizing an intermediary computer system.

FIG. 14 is a flowchart illustrating the operation of the remote control and the selection button during the watching of television programming by the user.

FIG. 15 is a flowchart illustrating the uploading of logged data contained within the remote control.

FIG. 16 is a flowchart illustrating the receiving and utilization of log data from the remote control to determine whether or not to send information to the user.

FIG. 17 is a flowchart illustrating the determination of the information desired by the user and the form of its availability.

FIG. 18 is a flowchart illustrating the overall operation of the present invention from sampling the signal code of each remote control to downloading the configuration data.

FIG. 19 is a flowchart illustrating the functionality within the control station for identifying each electronic device.

FIG. 20 is a flowchart illustrating the usage of a web page to allow a user to directly enter the identity of each electronic device into the control station.

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FIG. 21 is an illustration of a web page for entering electronic device information into.

FIG. 22 is an illustration of a web page displaying the connection of external electronic devices.

FIG. 23 is an illustration of a web page displaying the selection of channels to include and exclude from the electronic system configuration.

FIG. 24 is an illustration of the remote control with a music guide.

FIG. 25 is an illustration of the remote control with a television guide.

FIG. 26 is an illustration of a web page showing the key mappings upon the keypad as configured.

FIG. 27 is an illustration of a web page showing the setup of various tasks such as "Watch Television" and "Watch DVD."

FIG. 28 is a flowchart illustrating the automatic operation of the electronic system in logging information relating to changes in the device settings.

FIG. 29 is a flowchart illustrating the uploading of logged data contained within the remote control.

FIG. 30 is a flowchart illustrating the receiving and utilization of log data from the remote control to determine whether or not to send information to the user.

FIG. 31 is a flowchart illustrating the determination of the information desired by the user and the form of its availability.

FIG. 32 is a flowchart illustrating the logging of a favorite show based upon the number of times viewed with a specified period of time and setting an alarm for the next programming event.

FIG. 33 is a flowchart illustrating the intuitive and automatic functionality of the present invention regarding a favorite program.

FIG. 34 is a flowchart illustrating the overall operation of the present invention for downloading the configuration data from the control station.

FIG. 35 is a flowchart illustrating the connecting to the control station for uploading music data and downloading configuration data.

FIG. 36 is a flowchart illustrating the process of receiving the uploaded music data, determining the identity of each music CD and transferring the configuration data to the electronic system.

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FIG. 37 is a flowchart illustrating the usage of a web page for entering media information into.

FIG. 38 is an illustration of a web page for entering media information into.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The following description is presented to enable any person skilled in the art to make and use the invention, and is provided in the context of a particular application and its requirements. Various modifications to the disclosed embodiments will be readily apparent to those skilled in the art, and the general principles defined herein may be applied to other embodiments and applications without departing from the spirit and scope of the present invention. Thus, the present invention is not intended to be limited to the embodiments shown, but is to be accorded the widest scope consistent with the principles and features disclosed herein.

The data structures and code described in this detailed description are typically stored on a computer readable storage medium, which may be any device or medium that can store code and/or data for use by a computer system. This includes, but is not limited to, magnetic and optical storage devices such as disk drives, magnetic tape, CDs (compact discs) and DVDs (digital video discs), and computer instruction signals embodied in a transmission medium (with or without a carrier wave upon which the signals are modulated). For example, the transmission medium may include a communications network, such as but not limited to the Internet or wireless communications.

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, the attached Figures 1 – 11b illustrate a state-based remote control system **10**, which comprises a housing **20**, a keypad **114** in communication with an electronic system **100** contained within the housing **20**, and a communication device **108** in communication with the electronic system **100** for communicating with external electronic devices **12**. The electronic system **100** constantly monitors the buttons of the keypad **114** and other switches selected by a user to determine the state of all external electronic devices **12** that are to be controlled. When the user selects a task (e.g. watch television), the electronic system **100** automatically determines the actions required to achieve the desired task based upon the current state of the external

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electronic devices **12**. After the task has been fulfilled, the electronic system **100** updates the data to reflect the modified state of the external electronic devices **12**.

The attached Figures 12 - 17 illustrate an active media content access system **10**, which comprises a remote control having an electronic system **100** that monitors the date, time, media type, and current channel that a user is currently watching. When the user depresses a selection button **110** during a television program they are interested in receiving additional information about, the electronic system **110** immediately logs the date, time, media type, and current channel for later uploading to a control station **40**. When the user is finished watching television, they then connect the electronic system **100** to the Internet **130** and upload the logged information to the control station **40** which matches the logged information with previously known programming information to allow for determination of the programming the user was watching when the selection button **110** was depressed. The control station **40** determines what available information to the send to the user such as e-mail, websites, printed materials, software offers and other information related to the programming the user is interested in.

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, Figures 18 through 27 illustrate an online remote control configuration system **10**, which comprises a remote control having a housing, a keypad, and an electronic system for receiving configuration data from a control station via a global computer network (e.g. Internet). The user preferably "samples" one or more signals from a remote control into the electronic system and then uploads the samples to the control station. The control station analyzes the uploaded samples and transmits the appropriate configuration data to properly configure the electronic system. The user may also access a web site of the control station and manually select each of the external electronic devices that the remote control is to operate after which the control station sends the appropriate configuration data to the electronic system. The user can also specify how the devices are connected and the configuration can be transferred to the electronic system **100** from the control station **40**.

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, Figures 28 through 33 illustrate a passive media content access system **10**, which comprises a remote control having an electronic system **100** that monitors the date, time, current channel and additional relevant

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information regarding a media program that a user is currently viewing and/or listening to. The electronic system **110** automatically logs the date, time, current channel and additional relevant information for later uploading to a control station **40**. When the user is finished viewing and/or listening to the media program, they then connect the electronic system **100** to the Internet **130** and upload the logged information to the control station **40** which matches the logged information with previously known programming information to allow for determination of the programming the user was watching and/or listening to. The control station **40** determines what available information to the send to the user such as e-mail, websites, printed materials, software offers and other information related to the programming the user is interested in.

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, Figures 34 through 38 illustrate a remote control multimedia content listing system **10**, which comprises a remote control having a housing, a display, a keypad, and an electronic system for receiving configuration data from a control station via a global computer network (e.g. Internet). The user may enter media information into the electronic system thereafter uploading the media information to the control station. The control station analyzes the uploaded media information and transmits the appropriate configuration data to properly configure the electronic system to provide a usable "guide" for the media. The user may also access a web site of the control station and manually enter the media information after which the control station sends the appropriate configuration data to the electronic system. The electronic system also preferably receives automatic updates of the configuration data when connected to the control station via the Internet for maintaining an updated multimedia listing.

Remote Control Structure

The present invention generally is comprised of a housing **20** having a structure and shape similar to conventional remote control devices. The housing **20** may be constructed of various types of materials and shapes as can be appreciated by one skilled in the art. The housing is preferably structured to be ergonomic for a majority of users.

The present invention may be utilized to control and operate various external electronic devices including but not limited to televisions, stereos, receivers, VCRs, DVD players, CD players, amplifiers, equalizers, tape players, cable units, satellite dish

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receivers, lighting, window shades and other electronic devices. Almost any number of external electronic devices may be controlled by the present invention as can be accomplished with conventional remote control devices.

Electronic System

The present invention is utilized to control and operate various external electronic devices including but not limited to televisions, stereos, receivers, VCRs, DVD players, CD players, amplifiers, equalizers, tape players, cable units, satellite dish receivers, lighting, window shades and other electronic devices. Almost any number of external electronic devices may be controlled by the present invention as will be discussed in further detail.

Figure 6 is a block diagram of an exemplary electronic system **100** for practicing the various aspects of the present invention. The electronic system **100** is preferably enclosed within the housing. A portable power source **140** is electrically connected to the electronic system **100** for providing electrical power to the electronic system **100**. The power source **140** may be comprised of any power source such as a battery structure (disposable or rechargeable), solar cells, or direct power.

The electronic system **100** preferably includes a display screen **104**, a network interface **112**, a keypad **114**, a microprocessor **116**, a memory bus **118**, random access memory (RAM) **120**, a speaker **102**, read only memory (ROM) **122**, a peripheral bus **124**, a keypad controller **126**, and a communications device **108**. As can be appreciated, the electronic system **100** of the present invention may be comprised of any combination of well-known computer devices, personal digital assistants (PDAs), laptop computers, remote control devices and other similar electronic structures.

The microprocessor **116** is a general-purpose digital processor that controls the operation of the electronic system **100**. The microprocessor **116** can be a single-chip processor or implemented with multiple components. Using instructions retrieved from memory, the microprocessor **116** controls the reception and manipulations of input data and the output and display of data on output devices.

The memory bus **118** is utilized by the microprocessor **116** to access RAM **120** and ROM **122**. RAM **120** is used by microprocessor **116** as a general storage area and as scratch-pad memory, and can also be used to store input data and processed data. ROM

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122 can be used to store instructions or program code followed by microprocessor **116** as well as other data.

Peripheral bus **124** is used to access the input, output and storage devices used by the electronic system **100**. In the described embodiment(s), these devices include a display screen **104**, an accessory device **106**, a speaker **102**, a communications device **108**, and a network interface **112**. A keypad controller **126** is used to receive input from the keypad **114** and send decoded symbols for each pressed key to microprocessor **116** over bus **128**.

The display screen **104** is an output device that displays images of data provided by the microprocessor **116** via the peripheral bus **124** or provided by other components in the electronic system **100**. Other output devices such as a printer, plotter, typesetter, etc. can be utilized as an accessory device **106**.

The microprocessor **116** together with an operating system operate to execute computer code and produce and use data. The computer code and data may reside on RAM **120**, ROM **122**, or other storage mediums. The computer code and data could also reside on a removable program medium and loaded or installed onto the electronic system **100** when needed. Removable program mediums include, for example, PC-CARD, flash memory, and floppy disk.

The network interface **112** is utilized to send and receive data over a network connected to other electronic systems. The network interface may be comprised of a Universal Serial Bus (USB), an external bus standard that supports data transfer rates of 12 Mbps (12 million bits per second). A single USB port can be used to connect up to 127 peripheral devices, such as mice, modems, and keyboards. An interface card or similar device and appropriate software implemented by microprocessor **116** can be utilized to connect the electronic system **100** to an existing network and transfer data according to standard protocols including data over a global computer network such as the Internet.

The keypad **114** is used by a user to input commands and other instructions to the electronic system **100**. Other types of user input devices can also be used in conjunction with the present invention. For example, pointing devices such as a computer mouse, a jog switch **22**, a track ball, a stylus, or a tablet to manipulate a pointer on a screen of the electronic system **100**.

The present invention can also be embodied as computer readable code on a computer readable medium. The computer readable medium is any data storage device that can store

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data which can be thereafter be read by a electronic system. Examples of the computer readable medium include read-only memory, random-access memory, magnetic data storage devices such as diskettes, and optical data storage devices such as CD-ROMs. The computer readable medium can also be distributed over a network coupled electronic systems so that the computer readable code is stored and executed in a distributed fashion.

The communications device **108** may be comprised of any well-known communication system that allows communications with external electronic devices. The communications device **108** may provide for various types of communication such as but not limited to via infrared (IR), wireless (e.g. BLUETOOTH), unidirectional, bi-directional, radio frequency (RF), visible light, ultrasonic and various other means for communicating with external electronic devices. The communications device **108** is capable of receiving a "signal sample" from another remote control wherein the signal sample is stored within the electronic system.

The environmental unit **110** senses environmental information such as lighting, motion, orientation, temperature, audio and other environmental information. The environmental unit **110** communicates the detected environmental information to the microprocessor **116** for consideration in controlling the external electronic devices. The environmental unit **110** includes the appropriate sensors such as light sensors, temperature sensors, sound sensors and other desirable sensors to determine the environment conditions external of the housing.

Input into the electronic system is accomplished mainly through the usage of the keypad **114**. The keypad **114** includes a plurality of buttons that allow the user to execute one or more commands. The keypad **114** allows for the control of basic functions such as volume, channel manipulation, mute, and last channel. However, the keypad **114** may also include several buttons that represent a specific task such as watch television, listen to radio and various other tasks. Various other input devices may be utilized to input data into the electronic system such as a jog switch **22** (i.e. dial), motion and orientation detectors, touch sensitive screens and voice recognition. The display **104** provides information to the user such as possible tasks to complete or the current state of the external electronic devices.

The electronic system must be capable of storing and logging various types of "event data" such as date, time, current channel and other types of information relevant to

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determining the identity of a specific television program at a particular time. The remote control may be comprised of various other well-known structures and functions known in the art. It can also be appreciated that the present invention as disclosed does not require the functionality to control a television or other electronic devices.

Initializing/Synchronizing of Electronic System with External Devices

Prior to utilizing the present invention, the user must program the electronic system **100** to not only recognize all of the external electronic devices **12** to be controlled but also as to each external electronic device **12** respective current "states" (i.e. on, off, current input, current output, etc.) as is shown in Figure 7 of the drawings.

The initial programming of the electronic system **100** may be accomplished through various well-known means such as entering a code for each specific external electronic device. "Sampling" of a signal from a remote control utilized to control a specific electronic device may also be utilized to assist in the programming of the electronic system **100**. Various other methods may be utilized to program the electronic system **100** to recognize and control the external electronic devices **12** which are well known in the art.

After all of the external electronic devices **12** have been properly programmed into the electronic system **100**, the user then must program the "current state" of each external electronic device into the electronic system **100**. This is accomplished typically by the user answering a series of questions shown on the display regarding each display. For example, the display may ask "Is the television turned on?" which the user would respond to. It can be appreciated that there can also be a default state for all of the external devices as being "off." All of the programmed "Current State Data" is stored within memory of the electronic system **100**.

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Current State Data

"Current State Data" is data information relating to the current state of each of the external electronic devices **12** stored within the electronic system **100**. The "state" of an external electronic device **12** is comprised of various variables such as but not limited to power on, power off, volume level, mute on, mute off, audio input, audio output, video input, video output, lights on, lights off, shades open, shades closed, and various other states common to external electronic devices **12**. The Current State Data is updated as actions and/or tasks are performed to provide an accurate reflection of the actual current state of the external electronic devices **12**. The Current State Data is utilized by the electronic system **100** to determine what external electronic devices **12** require modification when a "task" is selected by the user to prevent undesirable events from occurring.

Actions

An "action" is a specific event that occurs that typically only affects one of the external devices. An example of an action is when the user selects the power button on the keypad **114** to turn off the television which causes the television to switch from on to off or vice-versa.

The Current State Data is immediately modified to reflect the changed state of the television or other external electronic device after an action occurs as shown in the attached figures. The Current State Data is constantly updated to maintain an accurate reflection of the actual current state of the external electronic devices **12**.

Tasks

A "task" may be comprised of one or more "actions" depending upon (1) the desired state of all external devices as prescribed by the task, and (2) the current state of all external devices. Examples of tasks are "watch television," "listen to radio," "watch video," "listen to CD's," "watch DVD", and so forth. There are many more tasks that may accomplished with the present invention that are not discussed but are deemed readily apparent to one skilled in the art.

Each task has a "desired state" for each of the external electronic devices **12**. When a task is selected, either through the keypad or the display, the electronic system **100** immediately determines the Current State Data and compares this data to the "Desired State Data" for all of the external electronic devices **12**. After determining which external

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electronic devices **12** are in the desired state and which are not in the desired state, the electronic system **100** transmits a communication signal to the external electronic devices **12** that are not in the desired state to switch to the desired state based upon the task to be performed.

Another function of the present invention is to allow for the electronic system **100** to determine what menu options (i.e. "tasks") that are available upon the display **104** based upon the current state of the external electronic devices **12**. For example, if the television is currently on, the menu within the display may display the "Turn Television Off" task instead of the "Turn Television On" task which is not required.

"Watch Television" Task Example

Assuming for the sake of example that a user using the present invention has (1) interior lighting, (2) electronically controlled shades, (3) a stereo, (4) a television, (5) a CD player, and (6) a VCR which are programmed and synchronized within the electronic system as stated above. Figure 11 illustrates the "WATCH TELEVISION" task. Below is a sample listing of the "Current State Data" prior to the selection of the WATCH TELEVISION task as shown in Figure 11 of the drawings.

Current State Data

External Device	Initial State Prior to Execution of Task
1. Room Lighting	Lights turned on and shades open during evening hours.
2. Stereo	Turned on with input audio from CD player.
3. Television	Turned off with volume very high.
4. CD Player	On and playing CD.
5. VCR	Off.

After selecting the desired WATCH TELEVISION task, the electronic system **100** immediately reads the Current State Data and compares the same to the "Desired State Data." Below is a listing of the Desired State Data for the WATCH TELEVISION task.

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Desired State Data

External Device	Desired State After Execution of Task
1. Room Lighting	Light threshold at a minimum.
2. Stereo	Turned on with input audio from television.
3. Television	Turned on with volume at a low-medium setting.
4. CD Player	Off.
5. VCR	Off.

After comparing the Current State Data to the Desired State Data, the electronic system **100** determines that the room lighting needs to be reduced by turning off lights and closing shades along with switching the audio input to the television. The electronic system **100** further determines that the television needs to be turned on and the CD player turned off. Below is a listing of the individual actions that the electronic system **100** takes to perform the WATCH TELEVISION task.

Actions Performed to Reach Desired State

External Device	Action Performed
1. Room Lighting	Turn lighting off and close shades
2. Stereo	Switch input audio to television.
3. Television	Turn on and reduce volume to low-medium setting.
4. CD Player	Turn off.
5. VCR	No action taken.

After the specific actions are executed to accomplish the overall task, the memory within the electronic system **100** is automatically updated to reflect the various changes to the state of each individual external electronic device **12** for reference later. Below is a listing of the Current State Data after the WATCH TELEVISION task has been performed.

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Current State Data
(After Execution of Task)

External Device	Current State After Execution of Task
1. Room Lighting	Light threshold at a minimum.
2. Stereo	Turned on with input audio from television.
3. Television	Turned on with volume at a low-medium setting.
4. CD Player	Off.
5. VCR	Off.

The above process is repeated for the life of the state-based remote control system **10**. If additional external electronic devices are added to the overall entertainment system of the user, the user simply programs the added device **12** into the electronic system **100** and synchronizes the electronic system **100** accordingly.

Communication System

The present invention is best operated upon a global computer network such as the Internet **130**. A plurality of computer systems around the world are in communication with one another via this global computer network.

The present invention preferably utilizes the Internet **130** for communications, however it can be appreciated that as future technologies are created that various aspects of the invention may be practiced with these improved technologies. In addition, wireless technologies provide a suitable communications medium for operating the present invention.

Web Page

The present invention is preferably utilized in conjunction with information presented upon a web page or other displayable medium representing the control station **40**. A web page is typically comprised of a web page code that is stored upon a computer server. A typical web page includes textual, graphical and audio data within for display upon a computer system **60** and may be comprised of various formats.

The web page code may be formatted such as but not limited to HTML (Hyper-Text Markup Language), XML (Extensible Markup Language), HDML (Handheld Device Markup Language), and WML (Wireless Markup Language) that is displayable upon a computer system. Scripts such as JavaScript may be included within the web page code to

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request the server computer to request a specific audio file to be played with respect to an advertisement. As can be appreciated, additional formats for the web page code may be utilized as developed.

The web page code is retrieved by a computer system **60** or electronic system **100** via the Internet, wireless network or other communications channel utilizing a conventional web browser such as but not limited to NETSCAPE or MICROSOFT INTERNET EXPLORER. An individual using the consumer computer system **60** enters the URL (Uniform Resource Locator) or the electronic system **100** enters the URL identifying the web page to retrieve the web page code associated with the desired web page.

As shown in attached figures, at least one of the web pages associated with the control station **40** allows for the direct entry of the device identification. More particularly, information relating to the type, brand and model of the device are preferably entered into the web page that are thereafter forwarded to the control station **40** for determination of the configuration data. Various other designs of web pages may be utilized to receive the device data as can be appreciated by one skilled in the art. The figures disclose a direct entry of the device connections. The device connections can be specified/represented graphically, through dropdown lists or other configurations.

Selection Button

The selection button **110** is preferably positioned within a convenient location upon the keypad **114** and in communication with the electronic system **100** so the user can easily depress the selection button **110** when a television event is displayed that the user is interested in receiving additional information about. The selection button **110** is preferably positioned in an easy to access location upon the remote control as shown in Figures 1 through 3 of the drawings.

Upon depressing of the selection button **110**, the electronic system **100** "logs" the "event data" (e.g. date, time, media type, and current channel). It can be appreciated that the user may have the option of inputting additional data to correspond with the event data such as limiting the type of information they desire to receive relating to the television event.

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Event Data

"Event data" such as date, time, current channel, device information, settings and other types of information is utilized by the control station **40** to identity the specific television program at a particular time. Event data may also include additional information such as the user's preferences regarding the information they receive. For example, the user could program into the electronic system **100** that they desire to only receive e-mail and web site information regarding television events they are interested in. Various other types of information may be input by the user and recorded by the electronic system **100** that are relevant to television event information and user preferences.

For example, the user could program into the electronic system **100** that they desire to only receive e-mail and web site information regarding television events they have watched at least three times in one month. Various other types of information may be input by the user and recorded by the electronic system **100** that are relevant to media event information and user preferences as can be appreciated.

Automatic Logging

Whenever a change occurs within a device (e.g. television turned on/off; radio volume increased, etc.), the electronic system **100** automatically "logs" the "event data" (i.e. date, time, current channel, device information, etc.). It can be appreciated that the user may have the option of inputting additional data to correspond with the event data such as limiting the type of information they desire to receive relating to a television program they watch or limiting information only to sport related media programming. The user may also control the type of data automatically logged.

Control Station

The control station **40** is in communication with the Internet **130** via various well-known means. The control station **40** is preferably accessed by users via a web page which allows the users to identify themselves and modify user settings. The user may input various conditions and requirements regarding the additional information they receive via this web page which may also be accomplished by inputting additional data into the electronic system **100**.

The control station **40** is in communication with one or more programming stations **50** that provide updated television event information to the control station **40**. The programming stations **50** may be comprised of broadcasters, advertisers or other entities able

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to provide the necessary programming information. The television event information is basically comprised of date, time, channel, settings, title and other related information. It can be appreciated that additional types of event information may be received and stored by the control station **40**.

The user may control via the control station **40** the amount of information they receive (e.g. no more than 5 e-mails per day), the type of information they receive (e.g. only e-mails), when and where they receive the information (e.g. after 5 p.m. only for e-mails directed to their home e-mail address) and other control settings that are desirable by a user. The user control settings may be modified at any time via the web page or other means.

In addition to the television event information, the control station **40** maintains "available information" data relating to each of the television events. The available information data is basically comprised of a listing of information available to provide to the user if they are interested in receiving additional information about a specific television event. The television event information and the available information may be maintained in a single or separate databases as can be appreciated. In addition, the television event information and the available information are periodically updated to ensure the accuracy of the information in case of changes in television programming and available information.

The control station **40** maintains a database that allows for the determination of an electronic device by one or more signal samples from the corresponding remote control. The control station maintains a database that allows for the determination of what inputs and outputs are on the electronic devices **12**, and the mechanism for transferring between states. The control station **40** is preferably updated at periodic intervals regarding updated information regarding new electronic devices on the market.

The control station **40** is able to also create and update a database of the user's media related patterns such as the type of programming they view and/or listen to, what time of day they view and/or listen to media, what type of media do they view and/or listen to and other important information relating to consumers viewing media. The control station **40** is therefore able to "predict" the user's future behavior based upon the advance knowledge of the type of media programming to be aired in the future. The control station **40** may providing coding to the electronic system **100** regarding how to intuitively operate around the user. As more time passes and a greater sampling of data is collected regarding the user's

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media patterns, the more accurate the control station **40** is able to be in determining the likes and dislikes of user.

Information Provided to User

It can be appreciated that a virtually unlimited amount of information may be provided to a user regarding various media programming that they consistently view and/or listen to or that they mark with the selection button **110**. Information such as e-mails, web site information, printed materials, and sample products may be provided to the user relating to the programming they are potentially interested in.

Additional information may be provided to the user such as product samples, product offers and discounts, software, promotional items, screensavers, and the like. The information provided to the user may be sent immediately after the control station **40** determines the media programming the user is interested in or over a period of time wherein the user is basically maintained on a "mailing list" to receive additional information in the future.

Intuitive Functionality

The automatic logging of device changes provides in effect a database within the electronic system **100** that may be analyzed to determine patterns that may characterize a specific behavioral pattern within the user along with their respective likes and dislikes. Whenever the user views a television program, the electronic system **100** is able to log the date, time, channel and other information relating to the viewing of the television program. In addition, the electronic system **100** is able to determine when the user terminated viewing the television program along with the total amount of time spent viewing the program.

The combination of various data types allow the electronic system **100** and/or control station **40** "predict" what the user would like to have accomplished by the home entertainment system in specific circumstances. As illustrated in Figure 13 of the drawings, the electronic system **100** monitors whether a setting change occurs within an external electronic device **12** and then determines whether the setting change falls into a previously determined pattern. If so, then the "pattern" is logged into the electronic system **100** to assist in the intuitive operation of the present invention.

For example, if the user turns on the television and views channel 10 every Thursday at 7:00pm with the stereo turned on and the audio input switched to the television, the

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electronic system **100** is able to determine over a period of similar events that the user desires to watch the television program that occurs on channel 10 on Thursday at 7:00pm. Not only is the electronic system **100** capable of automatically setting an alarm to notify the user of this favorite event, but the electronic system **100** is able to turn a VCR on if it is determined that the user is not watching the favorite program. The electronic system **100** also has the ability to produce an audible alarm when the favorite programming is about to be on or is on to alert the user to turn the television on.

The control station **40** provides an added level of functionality to the electronic system **100** in that the control station **40** is able to determine the "type" of media programming that the user is interested in. For example, the control station **40** is able to determine whether the user watches comedies more than dramas and can alert the user to programming similar to their likes and avoid alerting the user to programming that they potentially will dislike. Various other functionality is readily apparent for the present invention which will not be discussed further.

Sampling Mode

The preferred method of operating the present invention is to "sample" the signal emitted from a remote control corresponding to the electronic device **12** to be controlled. Prior to sampling the signal, the user may select a "sample button" which will place the electronic system in "sample mode" for receiving one or more sample signals per remote control. Signal sampling has been performed within the remote control industry for years and is well known to those skilled in the art particularly with infrared signal sampling. No further discussion of signal sampling is required as the same is readily apparent in the art.

Prior to sampling the signal, the user positions the communication device **108** of the electronic system **100** in a location to detect and receive the signal from the remote control. Though not required, the user typically will select a button on the keypad **114** identifying the button they plan to press on the remote control prior to depressing. For example, if the user is going to sample the "power on/off signal" from the remote control, the user would select the "power button" or other appropriate button on the keypad **114** during sampling mode.

After identifying to the electronic system **100** what button on the remote control will be depressed, the user then depresses the desired button on the remote control thereby transmitting the signal to the communication device **108** which receives the signal as

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shown in Figure 9 of the drawings. The signal is then converted and forwarded by the communication device **108** to the memory **120** of the electronic system **100** for storage. It can be appreciated that if the electronic system **100** is connected to the global computer network **130** that the sample signals do not need to be stored within the electronic system **100**. Additional samples may be taken from the remote control or another remote control may be sampled.

Uploading Sampled Signals

As shown in Figures 9 and 10 of the drawings, after the desired signals have been sampled the user connects the electronic system **100** to the Internet via the network interface **112**, the communication device **108** or other means. The electronic system **100** may be directly or indirectly connected to the Internet as shown in the figures. The user then uploads the "sample data" to the control station **40**.

As shown in the figures, the control station **40** analyzes the sample data to determine the type, brand and model of each of the electronic devices **12** that are controlled by the corresponding sampled signal. Once the control station **40** has determined what the type, brand and model of each of the electronic devices **12** is, the control station **40** then generates "configuration data" that is then downloaded to the electronic system **100**. The configuration data configures the electronic system so that it is able to control all of the external electronic devices **12** as a universal remote control would. The user then utilizes the programmed remote control similar to a universal remote control. It is noted that the control system may prompt the user for additional information that may be utilized to create a personalized configuration.

Direct Configuration

As shown in the figures, the user may avoid sampling the signal from each of the remote controls and instead directly enter product information into the web page of the control station **40**. The user preferably enters relevant product information such as but not limited to device type (e.g. VCR, television, DVD player, etc.), brand (e.g. SONY, TOSHIBA, etc.), and model.

Once the all of the device information has been entered for each of the electronic devices **12**, the user then connects the electronic system **100** to the Internet via the network interface **112**, the communication device **108** or other means. The electronic system **100** may be directly or indirectly connected to the Internet as shown in the figures.

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Once the control station **40** has determined what the type, brand and model of each of the electronic devices **12** is, the control station **40** then generates "configuration data" that is then downloaded to the electronic system **100**. The configuration data configures the electronic system so that it is able to control all of the external electronic devices **12** as a universal remote control would. The user then utilizes the programmed remote control similar to a universal remote control.

As electronic devices are added to or removed from the user's electronic system, they can update their device information at the control station **40** via the usage of an uploaded signal sample or directly through the web page. The user is able to utilize the remote control as a conventional remote for all of their electronic devices **12** without interruption.

Media Guide

The "media guide" is controlled by the electronic system **100** and displayed by the display **104** for the user to view. The media guide provides a listing of the media (e.g. compact discs, DVDs, video tapes) for the user to view. An example of for the media guide is illustrated in the attached figures.

The user may utilize the keypad **114** to "scroll" and "select" the media they are interested in watching and/or listening too. For example, a listing of television programming may be displayed for a specific period of time wherein the user may select a displayed programming event to watch. When the user selects the desired programming, the electronic system **100** transmits a signal to the appropriate external electronic devices **12** to achieve the desired setting for the electronic devices **12**. The media guide may also include additional information relating to the media to be watched such as a description of a movie listed on the media guide and related information.

For example, when the user activates the television listing, it is displayed correctly for the current time. The user can scroll to a show of interest shown on the screen. When the user "selects" that show, the electronic device determines what channel change signal needs to be sent to the television to display that show. When the user activates the television listing, the user can scroll forward in time and select a show that they are interested in recording. When the user "selects" that show, the electronic system determines what date and time that show is on and sends the appropriate control signals to the VCR to program the VCR to record that show. When the user activates the listing

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of their CDs and CD track names, the user can scroll to a song of interest shown on the screen. When the user selects that song, the electronic device **12** determines what CD and track change signals need to be sent to the CD player.

Media Information

Media information is displayed in further detail upon the display **104**. Media information for music may include but is not limited to title, artist and track information. Media information for DVDs may include but is not limited to title, actors and type of movie (e.g. comedy, drama, horror, etc.). As can be appreciated, various types of media information may be utilized within the present invention for the user to utilize within their remote control.

Program Warning

The electronic system **100** is capable of being programmed to "warn" the user of an upcoming media event such as the showing of the television show FRIENDS on NBC. The user utilizes the keypad **114** to select the desired show and then enters the required information for the electronic system to determine when to sound an alarm. Various other features may be programmed into the electronic system **100** to assist the user in enjoying all forms of media.

Operation

In use, the user first ensures that the electronic system **100** has the correct date and time information. If the date and/or time are incorrect, the user reprograms the electronic system **100** via the keypad **114** to contain the correct date and time or the date/time may be automatically updated when connected to the control station **40**. The user would also input the current channel the television and/or radio station are set to allow for synchronization of the electronic system **100** with the television and stereo. The user then utilizes the remote control to switch the current channel either by directly entering the channel number or by selecting a "channel up" or "channel down" button that are common with conventional remote controls for controlling a television, cable box, television, VCR, stereo and other electronic devices controlling the media the user is viewing and listening to. The electronic system **100** constantly monitors and logs the "current channel" by compensating for selections of the channel up or channel down buttons on the keypad **114** to allow for "mirroring" the settings (e.g. power on/off, channel, volume level, video/audio input, etc.) of the television as is illustrated in Figure 9 of the drawings. After the user is

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finished watching television, listening to the stereo and other media, they may then upload the logged event data to the control station **40**. The uploading of the logged event data may be in real-time and continuous. After uploading the event date, the event data is preferably cleared from the electronic system **100** to prevent duplication of information sent to the user. When the control station **40** receives the uploaded event data, the control station **40** compares the event data to the programming schedules received from the programming stations **50** to determine the actual television, radio or other event the user is potentially interested in receiving additional information about. If no information is available, the user is informed that "No Information is Available" for a specific television event. If information is available to send to the user, then depending upon the type of information available and the preferences preset by the user, various types of information may be sent to the user relating to the television event(s) they are interested in as is shown in Figures 11 and 12 of the drawings. In addition, the control station **40** may program the electronic system **100** to recognize future media events and to alert the user to these events that may be related to programming that the user has shown considerable interest in through their interaction with media content. There is no requirement for interaction between the user and the electronic system regarding the logging of events. The logged information may also be aggregated in a statistic format for use by third-parties.

The electronic system **100** constantly monitors the "current channel" by compensating for selections of the channel up or channel down buttons on the keypad **114** to allow for "mirroring" the settings (e.g. power on/off, channel, volume level, video/audio input, etc.) of the television or other channel control device. When the user is viewing a television event they are interested in receiving additional information about (e.g. commercial, television program, infomercial, etc.), they depress the selection button **110** wherein the electronic system **100** logs the event data (e.g. date, time and current channel) along with any additional information such as user preferences. The user continues watching television and may select addition television events wherein the event data is logged by the electronic system **100**. After the user is finished watching television, they may then upload the logged event data to the control station **40**. The uploading of the logged event data may be in real-time and continuous. After uploading the event date, the event data is preferably cleared from the electronic system **100** to prevent duplication of information sent to the user. When the control station **40** receives the uploaded event data,

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the control station **40** compares the event data to the programming schedules received from the programming stations **50** to determine the actual television event the user is interested in receiving additional information about. If no information is available, the user is informed that "No Information is Available" for the specific television event. If information is available to send to the user, then depending upon the type of information available and the preferences preset by the user, various types of information may be sent to the user relating to the television event(s) they are interested in.

To configure the electronic system **100**, the user may enter the media information directly into the electronic system **100**. The user may enter all or a portion of the media information. If only a portion of the media information is entered, such as the album title, the electronic system **100** may then be connected to the control station **40** for downloading the remaining media information such as artist name and track information. The user may also directly enter the media information into the web page of the control station **40**. After the control station **40** has received the necessary information to determine the media desired to be listed within the media guide, the control station **40** searches for information relating to the media information input by the user. The control station **40** thereafter generates configuration data which is thereafter transferred to the electronic system **100** via the Internet **130**. The electronic system **100** stores the configuration data within for generating the media guide upon the display **104** when desired by the user. The media guide is displayed listing information relating to music, television, DVD and other media. The media guide preferably lists the items in a structured format for the user to view and select. It can be appreciated that the structure and function of the media guide may be comprised of various guide structures that are commonly utilized within the media industry and are hereby incorporated by reference into this patent application.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed to be within the expertise of those skilled in the art, and all equivalent structural variations

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and relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

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We claim:

1. A state-based remote control system, comprising:
a housing;
an electronic system capable of storing and updating current state data relating to at least one external electronic device;
a communication device connected to said electronic system for emitting a control signal to said at least one external electronic device; and
an input means connected to said electronic system for controlling said electronic system.

2. The state-based remote control system of Claim 1, wherein said input means includes a keypad having a plurality of buttons.

3. The state-based remote control system of Claim 2, wherein said input means includes a display.

4. The state-based remote control system of Claim 1, wherein said electronic system is capable of performing tasks based upon desired state data as compared to said current state data.

5. The state-based remote control system of Claim 4, wherein said electronic system only modifies a state of an electronic device that has a current state that does not match a desired state.

6. The state-based remote control system of Claim 1, wherein said communication device is able to transmit and receive data.

7. The state-based remote control system of Claim 1, wherein said electronic system is programmable to allow for the control of a plurality of external electronic devices.

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8. A method of operating a state-based remote control system having an electronic system with a communication device and an input device for controlling a plurality of external electronic devices, said method comprising the steps of:

(a) determining a current state data of said external electronic devices;

(b) receiving an action request from said input device;

(c) performing said action request; and

(d) modifying said current state data to reflect new state of said external electronic devices.

9. The method of operating a state-based remote control system of Claim 8, wherein said step (a) comprises asking a series of questions of a user regarding the state of each of said external electronic devices.

10. The method of operating a state-based remote control system of Claim 8, wherein said step (a) comprises assuming all of said external electronic devices are in a predetermined state.

11. A method of operating a state-based remote control system having an electronic system with a communication device and an input device for controlling a plurality of external electronic devices, said method comprising the steps of:

(a) determining a current state data of said external electronic devices;

(b) receiving a task request from said input device, wherein said task request has a desired state data stored within said electronic system;

(c) determining which of said external electronic devices require a modification to their respective state forming a change group; and

(d) modifying each external electronic device within said change group to conform to said desired state data.

12. The method of operating a state-based remote control system of Claim 11, including the following step:

(e) updating said current state data to reflect new state of said external electronic devices modified within said change group.

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13. The method of operating a state-based remote control system of Claim 11, wherein said step (a) comprises asking a series of questions of a user regarding the state of each of said external electronic devices.

14. The method of operating a state-based remote control system of Claim 11, wherein said step (a) comprises assuming all of said external electronic devices are in a predetermined state.

15. The method of operating a state-based remote control system of Claim 11, wherein said step (c) comprises comparing said current state data with said desired state data.

16. The method of operating a state-based remote control system of Claim 11, including the step of:

(e) displaying a menu containing at least one task that are dependent upon a state of said external electronic devices.

17. An active media content access system, comprising:

a control station;

a housing;

an electronic system capable of storing and uploading event data relating to at least one television event, wherein said electronic system contains a current time, current date, current device and current channel;

a communication device connected to said electronic system for uploading said event data to said control station; and

an input means connected to said electronic system for indicating when said electronic system should log event data comprised of said current time, said current date and said current channel.

18. The active media content access system of Claim 17, wherein said input means includes a selection button.

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19. The active media content access system of Claim 18, wherein said input means includes a display and a keypad.

20. The active media content access system of Claim 19, wherein said electronic system is capable of receiving user preference data relating to personal preferences.

21. The active media content access system of Claim 20, wherein said control station is in communication with a plurality of programming stations for receiving updated television event information.

22. The active media content access system of Claim 21, wherein said control station compares said event data to said television event information to determine what type of information to send to said user.

23. The active media content access system of Claim 22, wherein said control station is programmable by said user to reflect said personal preferences.

24. The active media content access system of Claim 23, wherein said personal preferences includes type of information to receive relating to said television event.

25. The active media content access system of Claim 24, wherein said communication device is in communication with said control station via a global computer network.

26. A method of using an active media content access system having an electronic system with a communication device and an input device, wherein said communication device is in communication with a control station, said method comprising the steps of:

(a) viewing a television event;

(b) receiving a log event data indication from a user; and

(c) logging an event data within said electronic system, wherein said event data is comprised of a current date, a current time, a current device and a current channel at the time of receiving said log event data indication.

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27. The method of using an active media content access system of Claim 26, including the step of:

(d) uploading said event data to said control station.

28. The method of using an active media content access system of Claim 27, including the steps of:

(e) determining an identity of said television event from said event data; and

(f) determining whether information is available regarding said television event.

29. The method of using an active media content access system of Claim 28, including the step of:

(g) providing available information to said user.

30. The method of using an active media content access system of Claim 29, including the step of:

(h) sending an e-mail containing said available information to said user.

31. The method of using an active media content access system of Claim 28, including the step of:

(g) providing available information depending upon predefined user preferences.

32. A method of using an active media content access system having an electronic system with a communication device and an input device, wherein said communication device is in communication with a control station, said method comprising the steps of:

(a) initializing a current date, a current time, a current device and a current channel into said electronic system;

(b) viewing a television event;

(c) receiving a log event data indication from a user; and

(d) logging an event data within said electronic system, wherein said event data is comprised of a current date, a current time, a current device and a current channel at the time of receiving said log event data indication.

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33. The method of using an active media content access system of Claim 32, including the step of:

(e) uploading said event data to said control station.

34. The method of using an active media content access system of Claim 33, including the steps of:

(f) determining an identity of said television event from said event data; and

(g) determining whether information is available regarding said television event.

35. The method of using an active media content access system of Claim 34, including the step of:

(h) providing available information to said user.

36. The method of using an active media content access system of Claim 35, including the step of:

(i) sending an e-mail containing said available information to said user.

37. An remote control configuration system, comprising:

a control station for providing configuration data;

a housing;

an electronic system capable of storing sample signal data relating to at least one electronic device and remote control;

a communication device connected to said electronic system for receiving said sample signal data;

a means for communicating with said control station; and

an input means connected to said electronic system.

38. The remote control configuration system of Claim 37, wherein said input means comprises a keypad.

39. The remote control configuration system of Claim 38, wherein said sample signal data is comprised of at least one infrared signal.

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40. The remote control configuration system of Claim 37, wherein said means for communicating with said control station is comprised of a global computer network.

41. The remote control configuration system of Claim 40, wherein said control station includes a web page for receiving electronic device information.

42. The remote control configuration system of Claim 37, wherein said control station includes a web page for receiving electronic device information.

43. A method of using a remote control configuration system having an electronic system with a communication device, an input device, and a means for communicating with a control station, said method comprising the steps of:

(a) sampling a signal sample from a remote control;

(b) storing said signal sample within said electronic system into a sample storage;

(c) repeating steps (a) and (b) for additional remote controls;

(d) uploading said sample storage to said control station;

(e) determining an identity of a remote control that corresponds with each said signal sample of said sample storage; and

(f) generating a configuration data for said electronic system that allows said electronic system to mimic each remote control sampled.

44. The method of using a remote control configuration system of Claim 43, including the step of:

(g) transferring said configuration data to said electronic system.

45. The method of using a remote control configuration system of Claim 44, including the step of:

(h) storing said configuration data within said electronic system.

46. The method of using a remote control configuration system of Claim 45, including the step of:

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(i) generating a signal to control an electronic device based upon said configuration data.

47. A method of using a remote control configuration system having an electronic system with a communication device, an input device, and a means for communicating with a control station, said method comprising the steps of:

(a) accessing a web page of said control station;

(b) inputting device data regarding an electronic device;

(c) repeating steps (a) and (b) for additional electronic devices; and

(d) generating a configuration data for said electronic system that allows said electronic system to mimic a remote control for each electronic device.

48. The method of using a remote control configuration system of Claim 47, including the step of:

(e) transferring said configuration data to said electronic system.

49. The method of using a remote control configuration system of Claim 48, including the step of:

(f) storing said configuration data within said electronic system.

50. The method of using a remote control configuration system of Claim 49, including the step of:

(g) generating a signal to control an electronic device based upon said configuration data.

51. A passive media content access system, comprising:

a control station;

a housing;

an electronic system capable of storing and uploading event data relating to at least one media event, wherein said electronic system contains a current time, current date, current device and current channel;

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a communication device connected to said electronic system for uploading said event data to said control station; and

an input means connected to said electronic system.

52. The passive media content access system of Claim 51, wherein said input means includes a keypad.

53. The passive media content access system of Claim 52, wherein said input means includes a display.

54. The passive media content access system of Claim 53, wherein said electronic system is capable of receiving user preference data relating to personal preferences.

55. The passive media content access system of Claim 54, wherein said control station is in communication with a plurality of programming stations for receiving updated media event information.

56. The passive media content access system of Claim 55, wherein said control station compares said event data to said media event information to determine what type of information to send to said user.

57. The passive media content access system of Claim 56, wherein said control station is programmable by said user to reflect said personal preferences.

58. The passive media content access system of Claim 57, wherein said personal preferences includes type of information to receive relating to said media event.

59. The passive media content access system of Claim 58, wherein said communication device is in communication with said control station via a global computer network.

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60. A method of using a passive media content access system having an electronic system with a communication device and an input device, wherein said communication device is in communication with a control station, said method comprising the steps of:

(a) changing a device setting relating to a media event; and

(b) logging an event data within said electronic system, wherein said event data is comprised of a current date, a current time, a current device and a current channel at the time of logging said event data.

61. The method of using a passive media content access system of Claim 60, including the step of:

(c) uploading said event data to said control station.

62. The method of using a passive media content access system of Claim 61, including the steps of:

(d) determining an identity of said media event from said event data; and

(e) determining whether information is available regarding said media event.

63. The method of using a passive media content access system of Claim 62, including the step of:

(f) providing available information to said user.

64. The method of using a passive media content access system of Claim 63, including the step of:

(g) sending an e-mail containing said available information to said user.

65. The method of using a passive media content access system of Claim 62, including the step of:

(f) providing available information depending upon predefined user preferences.

66. The method of using a passive media content access system of Claim 60, including the steps of:

(f) determining at least one favorite media event based upon said event data; and

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(g) setting a reminder for said at least one favorite media event to alert a user to the upcoming event.

67. The method of using a passive media content access system of Claim 66, including the steps of:

(h) determining whether proper device states are in effect for said at least one favorite media event; and

(i) switching at least one external electronic device to a proper device state if not in said proper device state.

68. A method of using a passive media content access system having an electronic system with a communication device and an input device, wherein said communication device is in communication with a control station, said method comprising the steps of:

(a) initializing a current date, a current time, a current device and a current channel into said electronic system;

(b) changing a device setting relating to a media event; and

(c) logging an event data within said electronic system, wherein said event data is comprised of a current date, a current time, a current device and a current channel at the time of logging said event data.

69. The method of using a passive media content access system of Claim 68, including the step of:

(d) uploading said event data to said control station.

70. The method of using a passive media content access system of Claim 69, including the steps of:

(e) determining an identity of said media event from said event data; and determining whether information is available regarding said media event.

71. A remote control multimedia content listing system, comprising:

a control station for providing configuration data;

a housing;

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a display within said housing;

an electronic system in communication with said display, wherein said electronic system is capable of storing a media guide;

a means for communicating with said control station for receiving said media guide; and

an input means connected to said electronic system.

72. The remote control multimedia content listing system of Claim 71, wherein said input means comprises a keypad.

73. The remote control multimedia content listing system of Claim 71, wherein said media guide is comprised of music information and video information.

74. The remote control multimedia content listing system of Claim 71, wherein said means for communicating with said control station is comprised of a global computer network.

75. The remote control multimedia content listing system of Claim 74, wherein said control station includes a web page for receiving media information.

76. The remote control multimedia content listing system of Claim 71, wherein said control station includes a web page for receiving media information.

77. A method of using a remote control multimedia content listing system system having an electronic system with a communication device, an input device, a display, and a means for communicating with a control station, said method comprising the steps of:

(a) entering a media record into said electronic system;

(b) storing said media record within said electronic system into a media storage;

(c) repeating steps (a) and (b) for additional media records;

(d) uploading said media storage to said control station;

(e) determining an identity of media that corresponds with each said media record of said media storage; and

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(f) generating a configuration data for said electronic system that allows said electronic system to display a media guide.

78. The method of using a remote control multimedia content listing system of Claim 77, including the step of:

(g) transferring said configuration data to said electronic system.

79. The method of using a remote control multimedia content listing system of Claim 78, including the step of:

(h) storing said configuration data within said electronic system.

80. The method of using a remote control multimedia content listing system of Claim 79, including the step of:

(i) displaying said media guide upon said display.

81. A method of using a remote control multimedia content listing system having an electronic system with a communication device, an input device, a display and a means for communicating with a control station, said method comprising the steps of:

(a) accessing a web page of said control station;

(b) inputting media data into said web page; and

(c) generating a configuration data for said electronic system that allows said electronic system to display a media guide.

82. The method of using a remote control multimedia content listing system of Claim 81, including the step of:

(d) transferring said configuration data to said electronic system.

83. The method of using a remote control multimedia content listing system of Claim 82, including the step of:

(e) storing said configuration data within said electronic system.

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84. The method of using a remote control multimedia content listing system of Claim 83, including the step of:

(f) displaying said media guide upon said display.

85. The method of using a remote control multimedia content listing system of Claim 81, wherein said media guide includes a television guide.

86. The method of using a remote control multimedia content listing system of Claim 81, wherein said media guide includes a music guide.

87. The method of using a remote control multimedia content listing system of Claim 16, wherein said music guide is comprised of information relating to music media contained within a user's home stereo system.

88. The method of using a remote control multimedia content listing system of Claim 86, wherein said music guide is comprised of information relating to compact discs contained within a user's home stereo system.

89. The method of using a remote control multimedia content listing system of Claim 88, including the steps of:

(d) selecting a media event to be displayed or listened to by said user; transmitting a control signal to an electronic device to play said media event.

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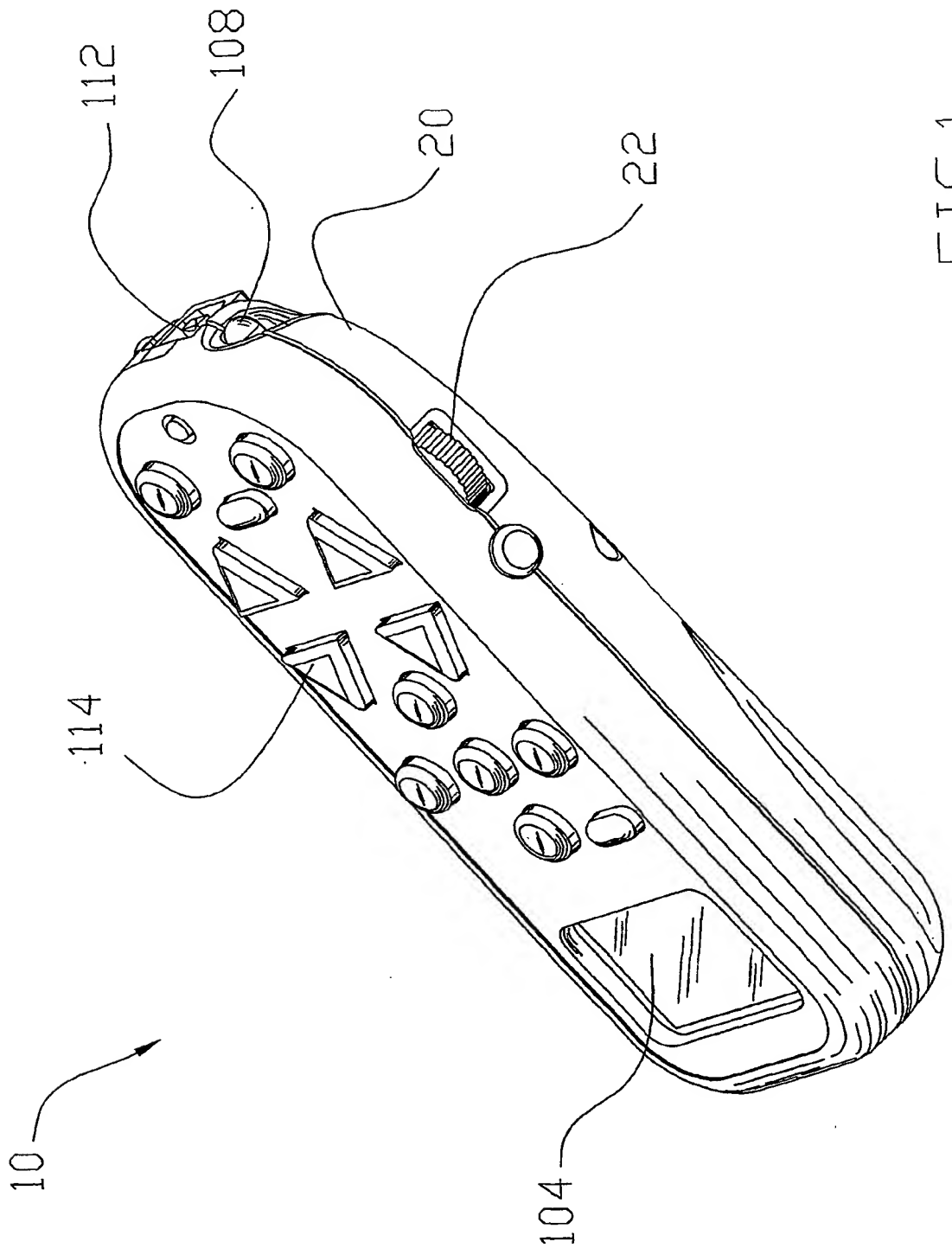

FIG.1

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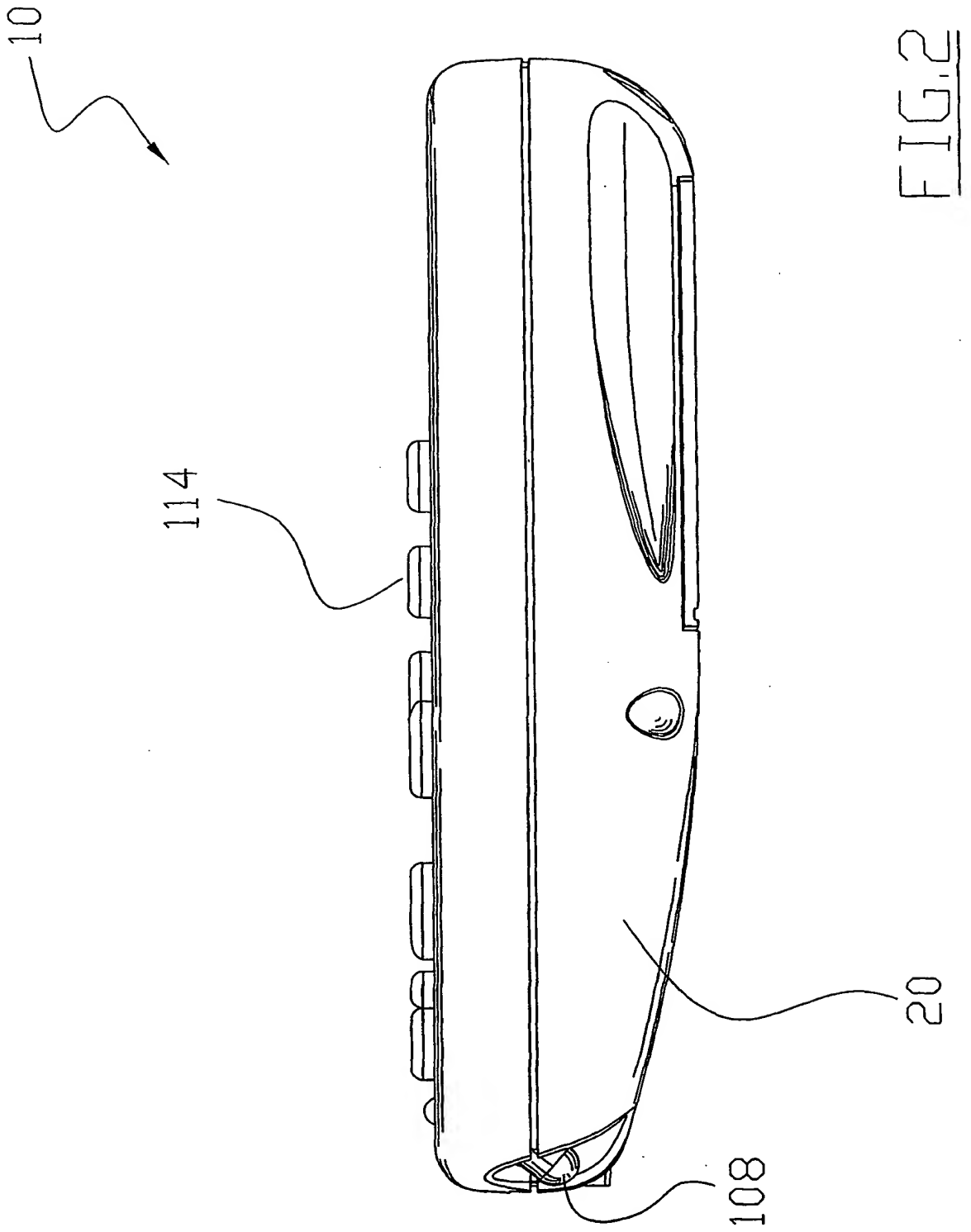

FIG.2

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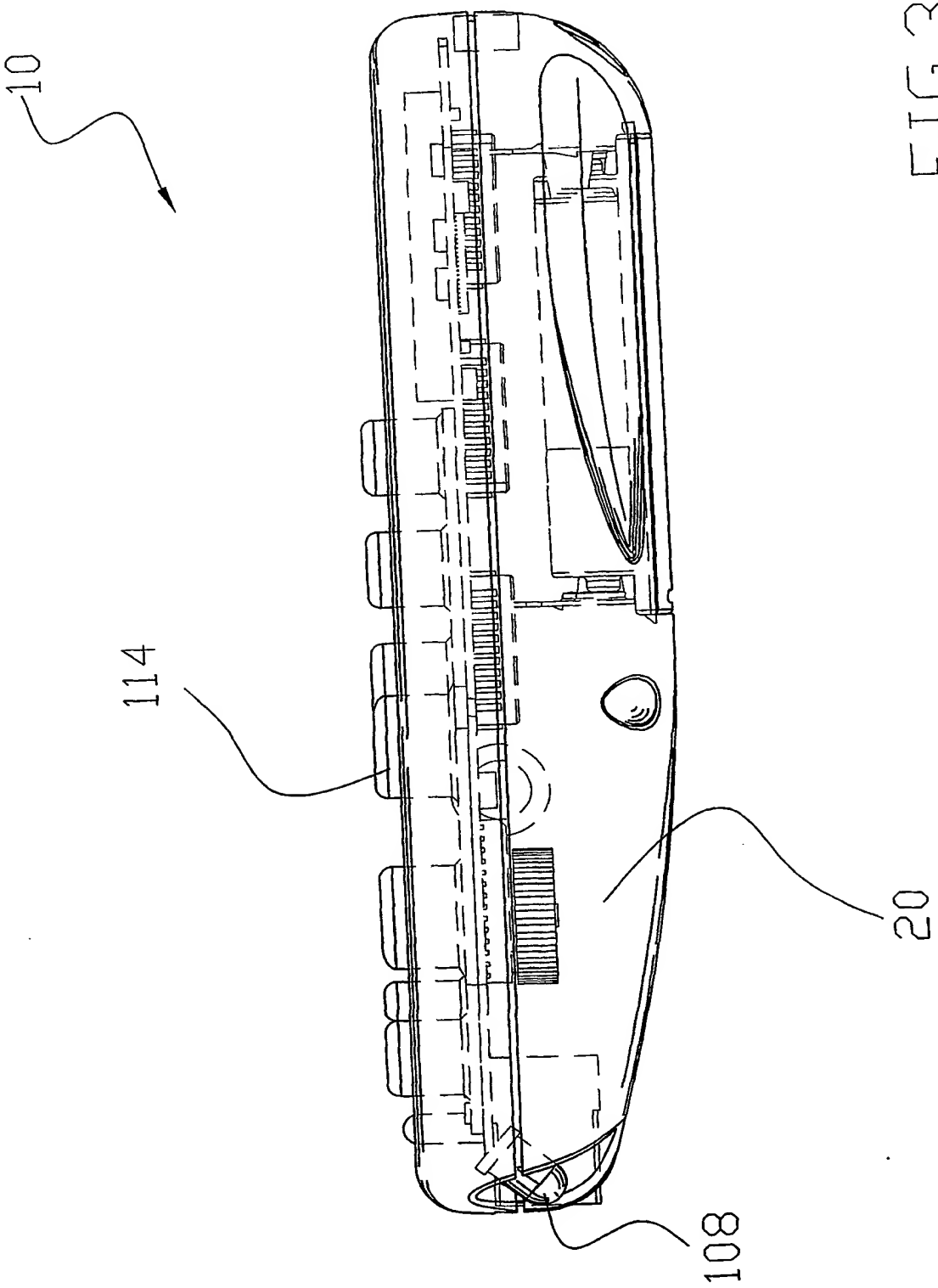
FIG.3



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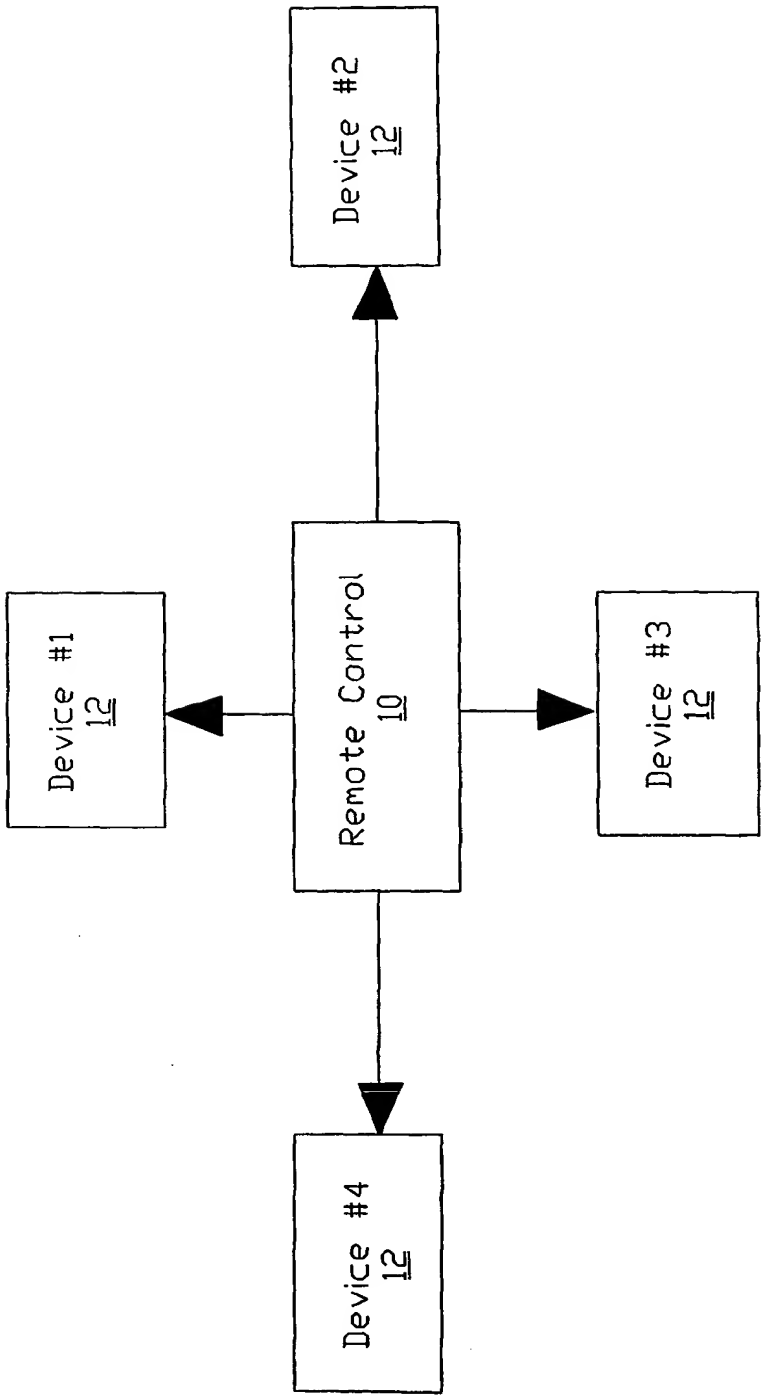

FIG.4

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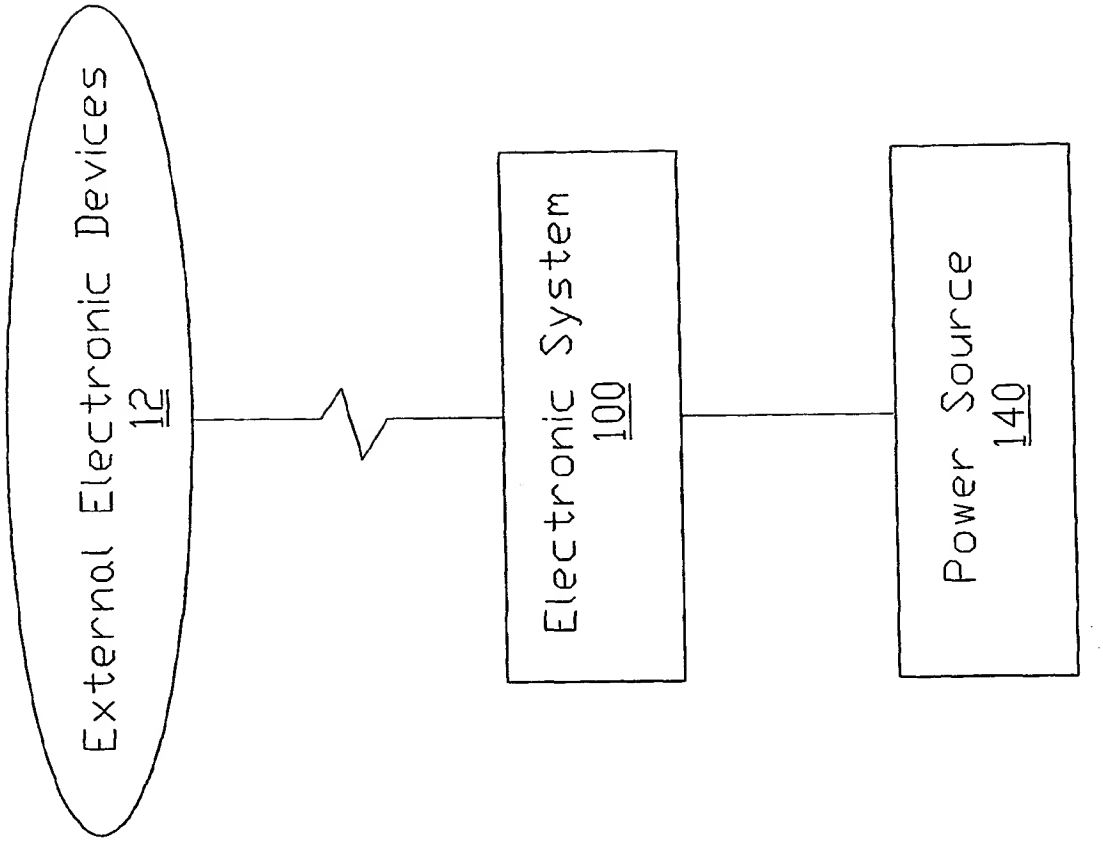
FIG.5



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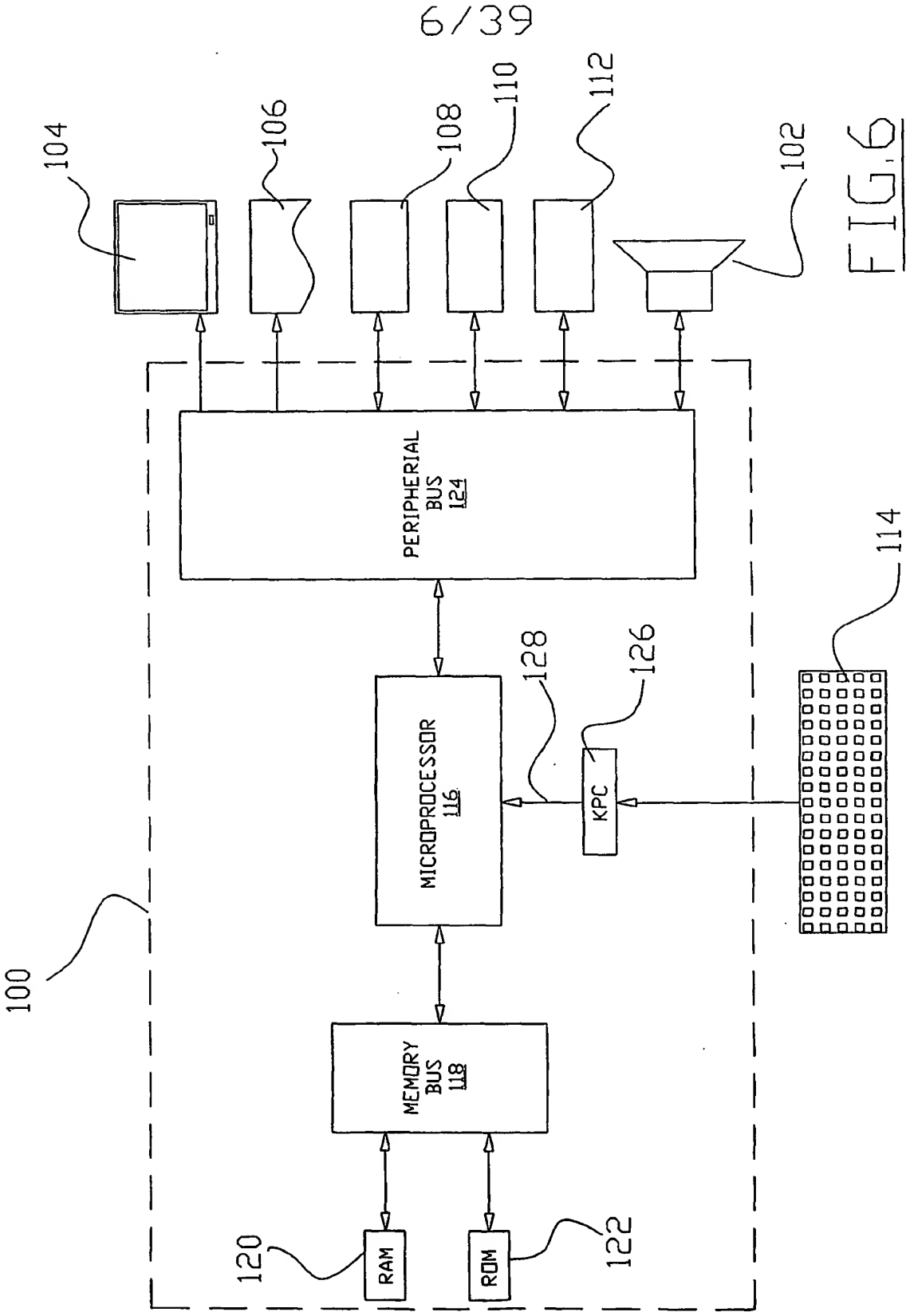

FIG.6

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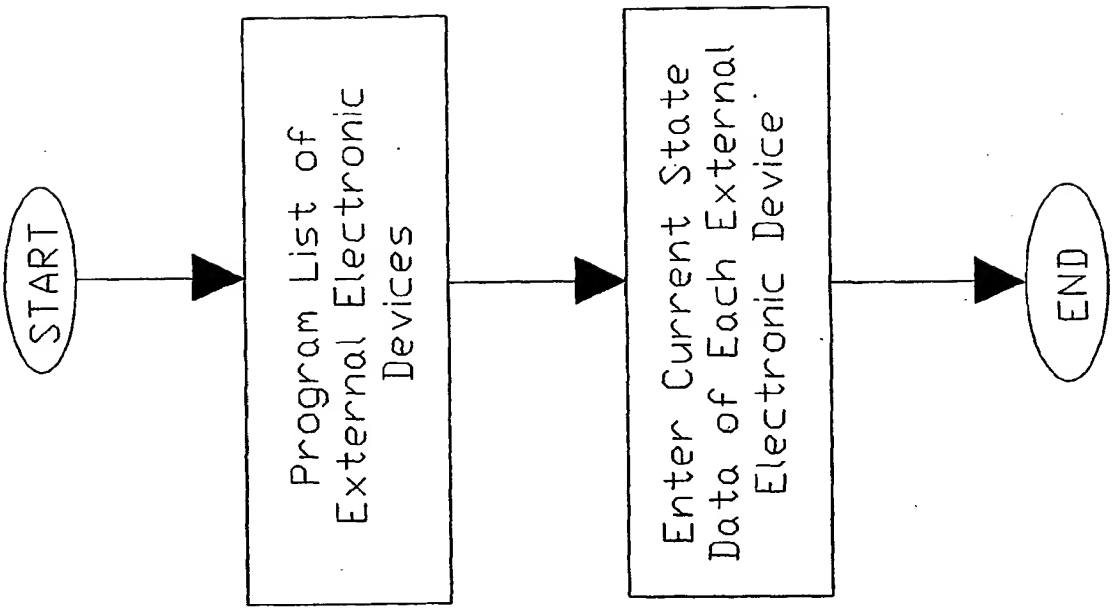
FIG. 7



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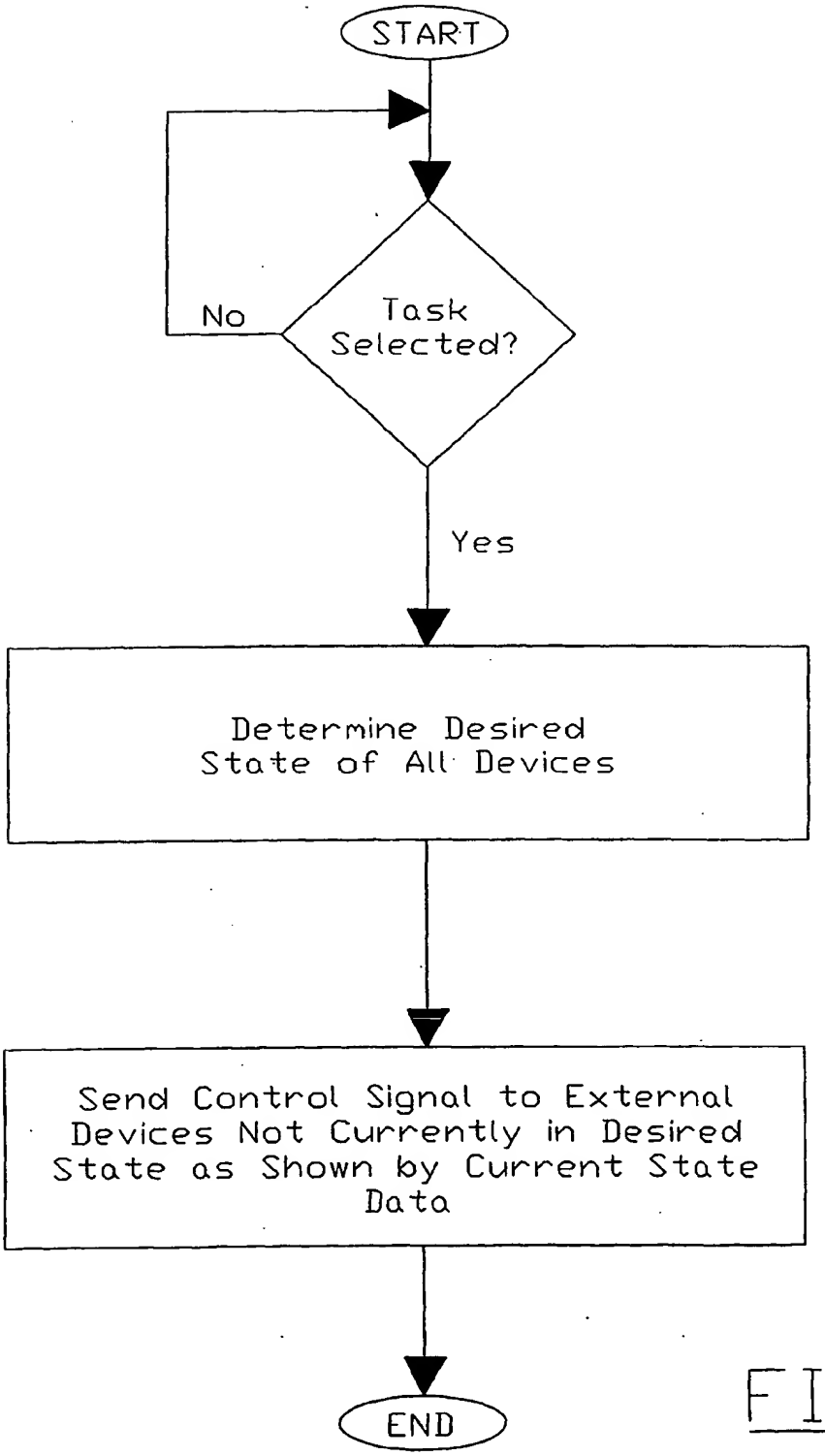

FIG.8

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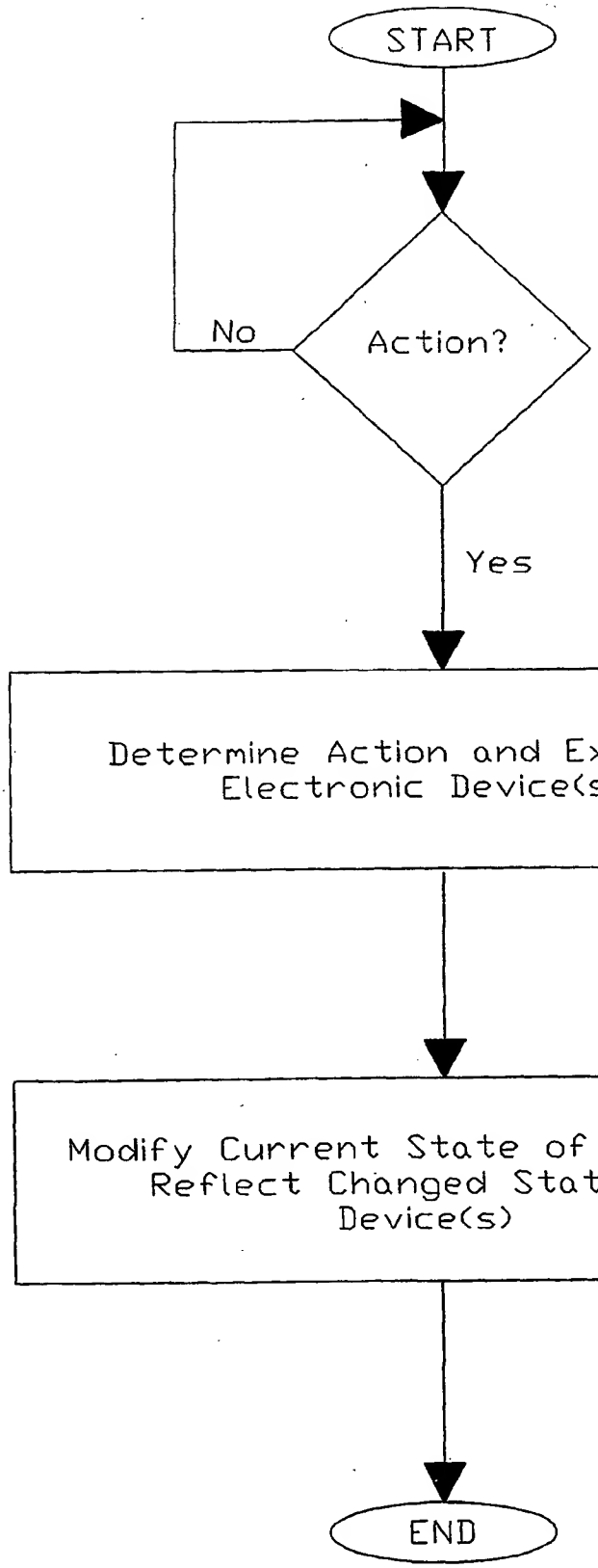

FIG.9

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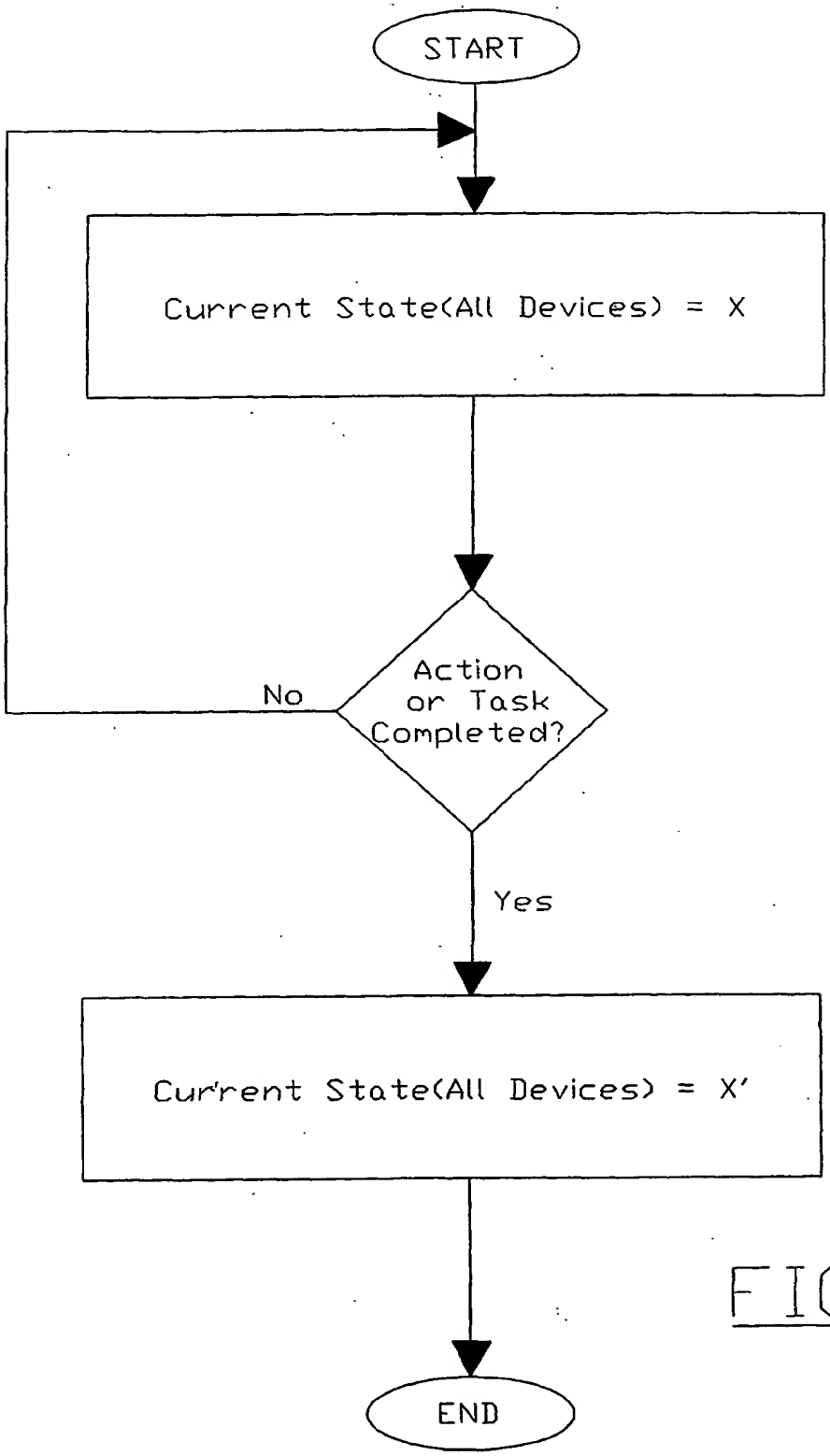

FIG.10

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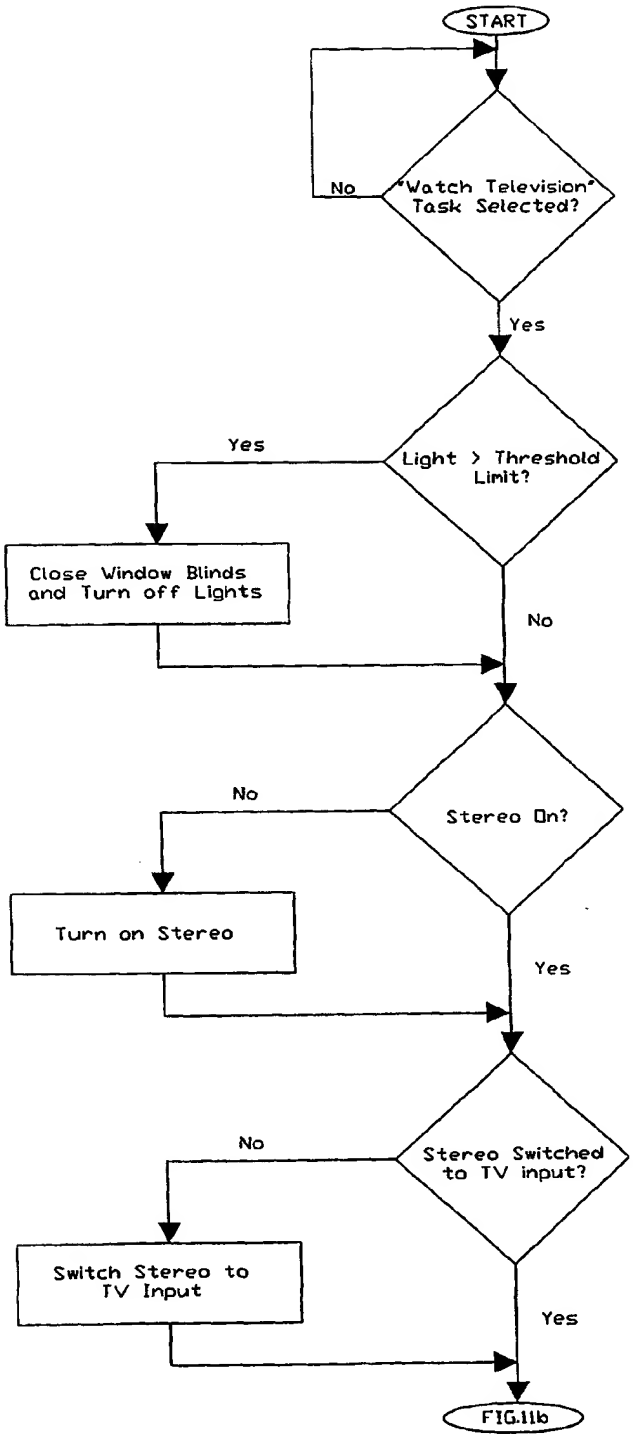

FIG.11a

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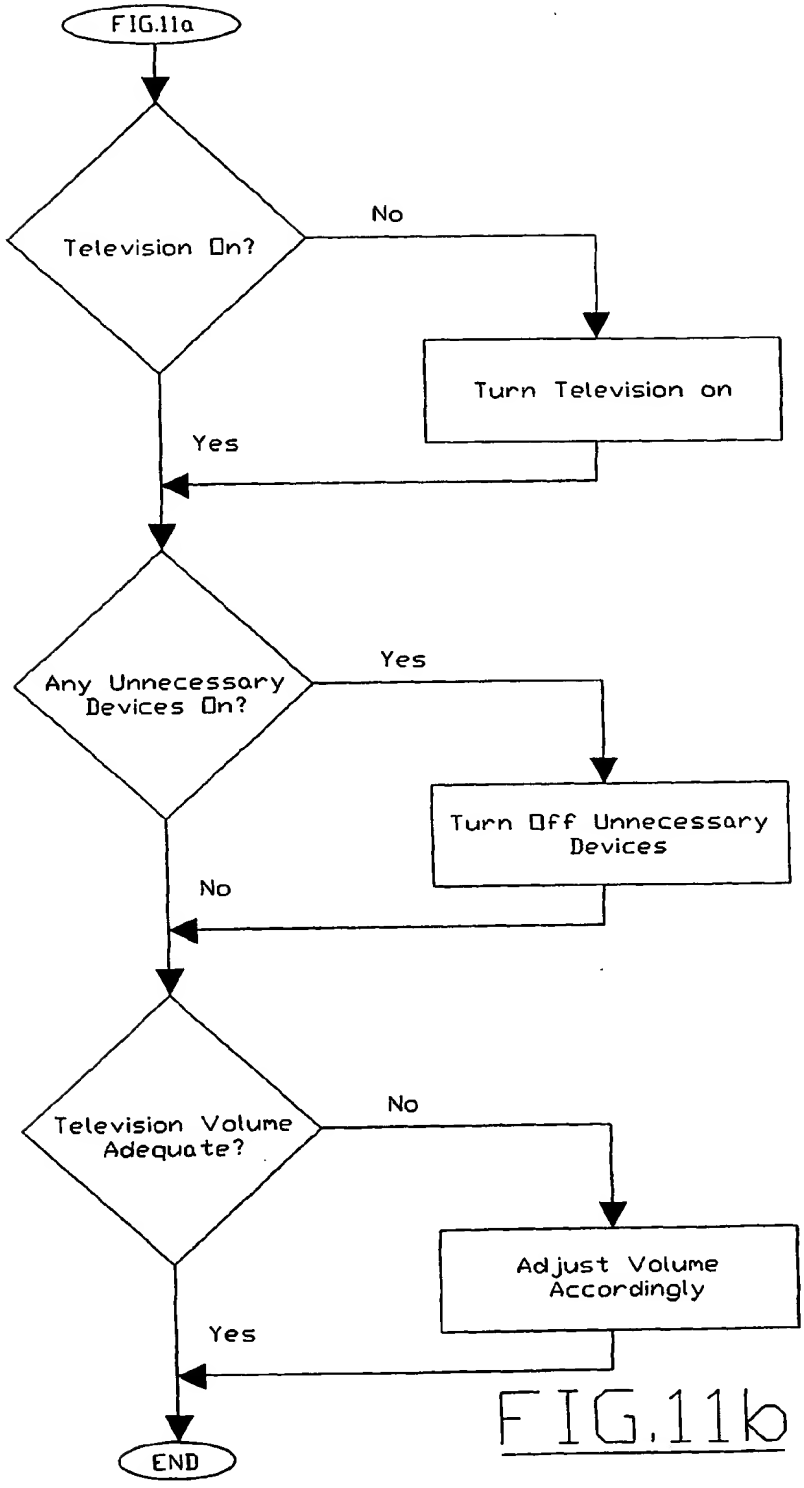

FIG.11b

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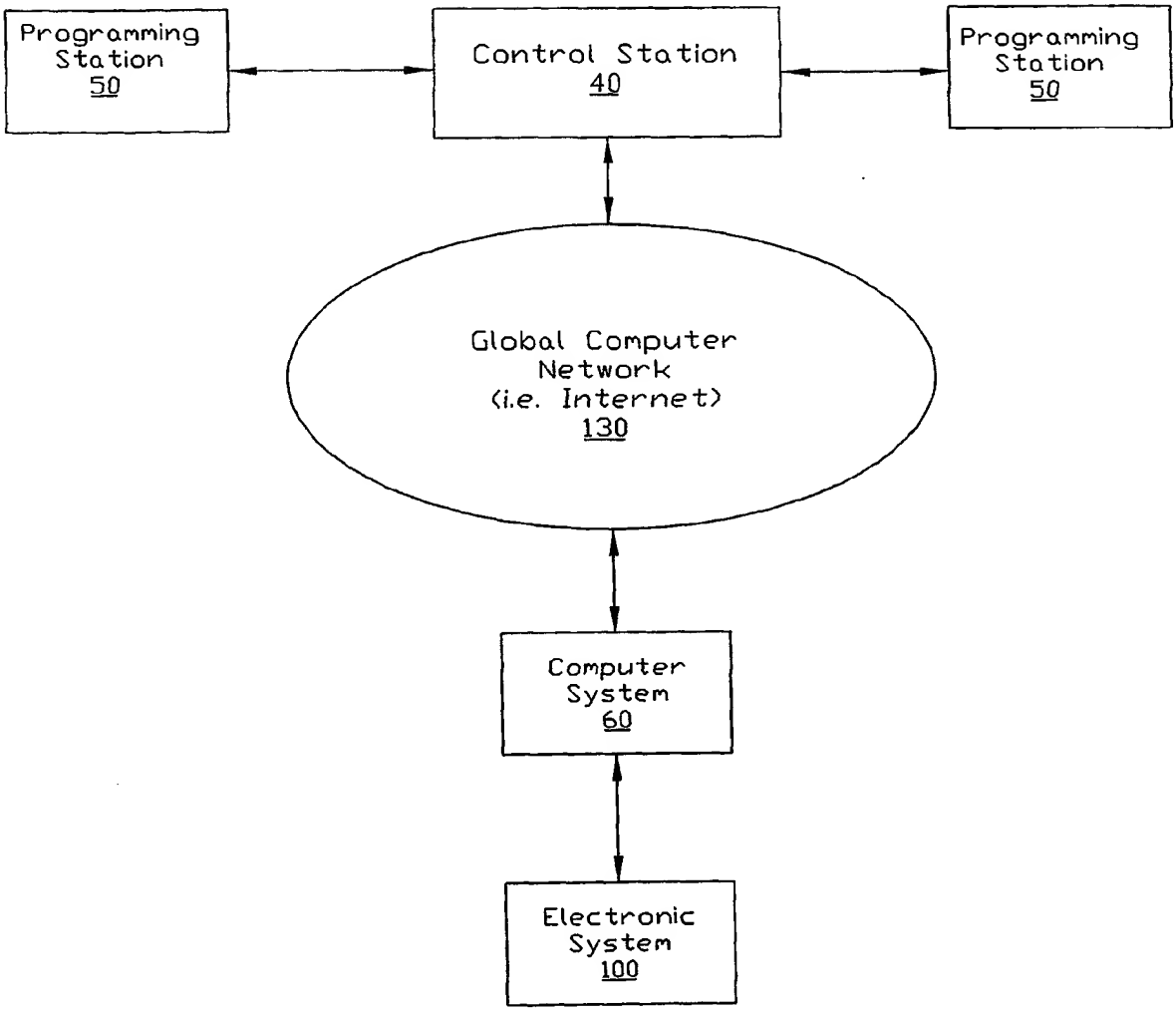

FIG. 12

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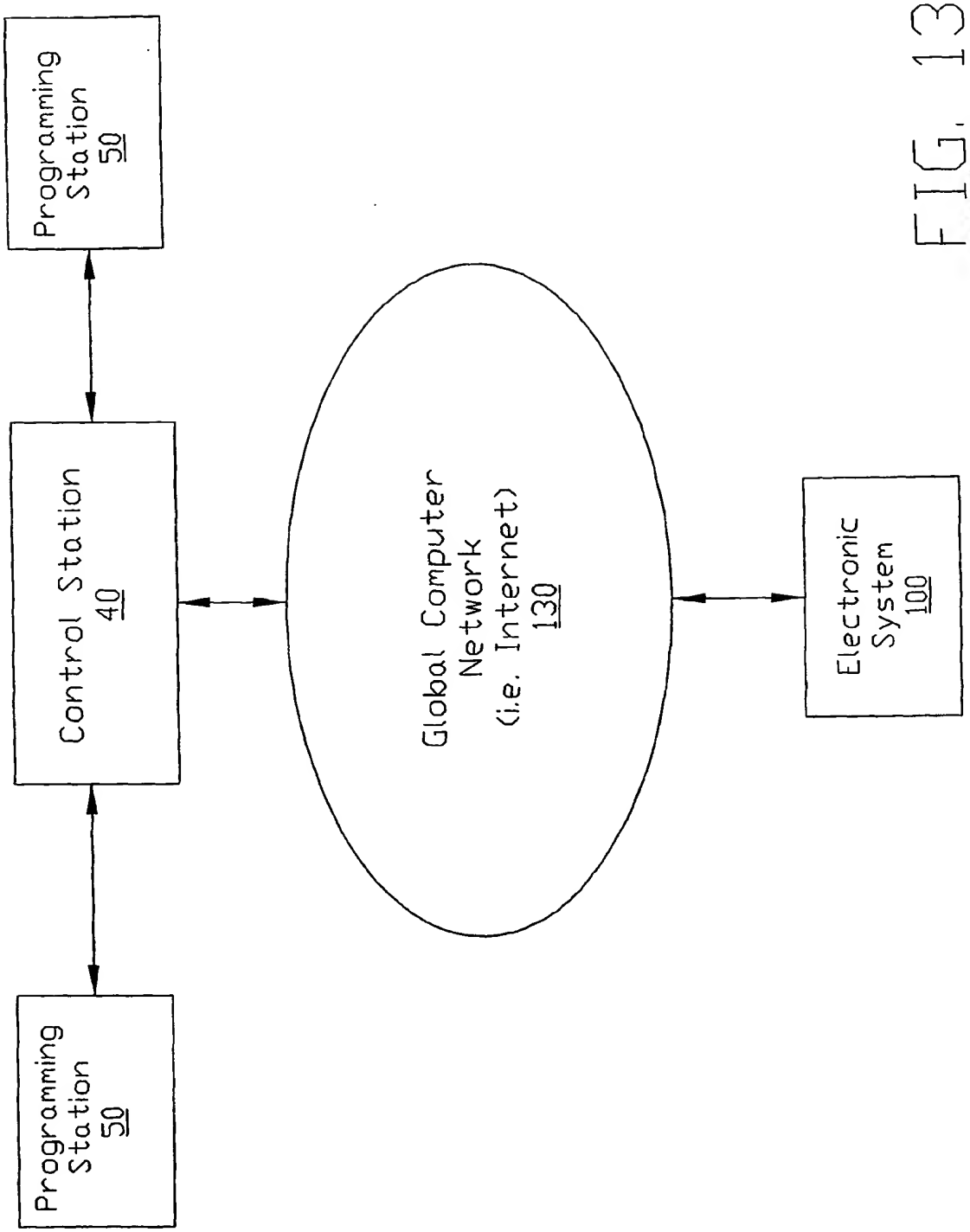

FIG. 13

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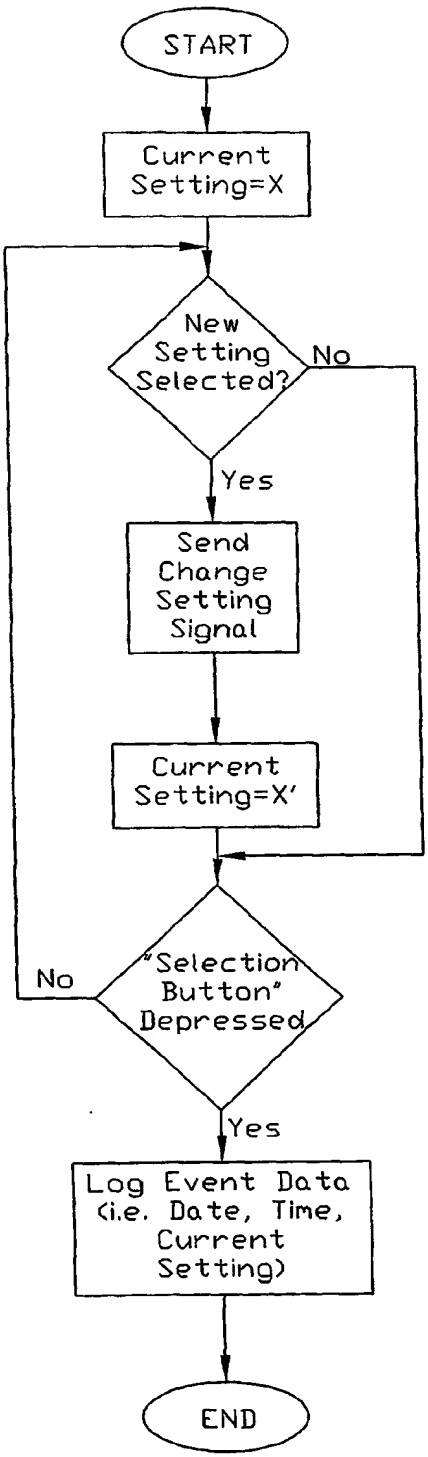

FIG. 14

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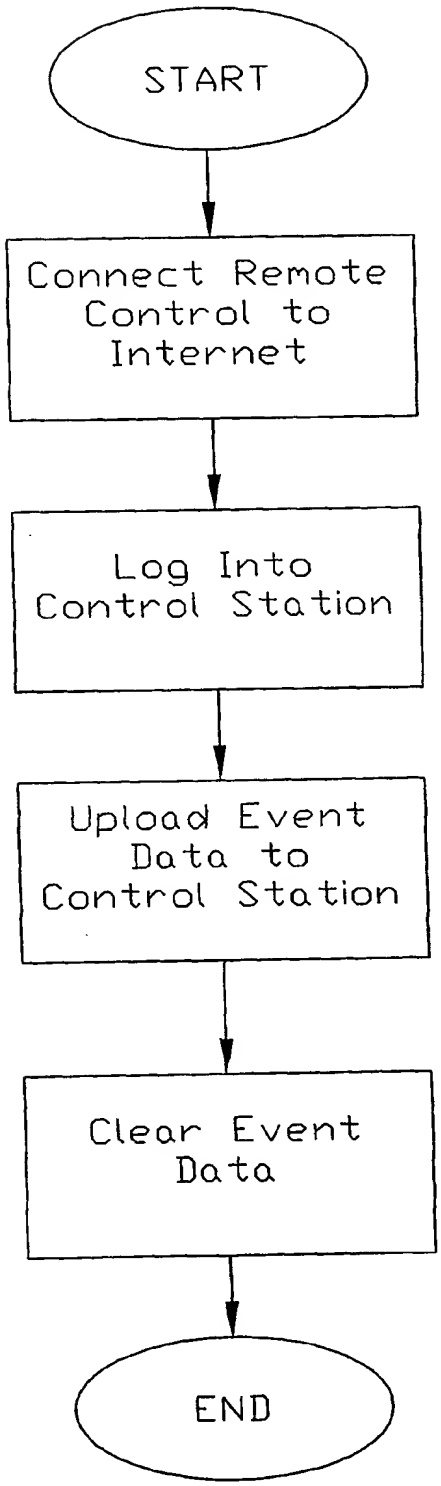

FIG. 15

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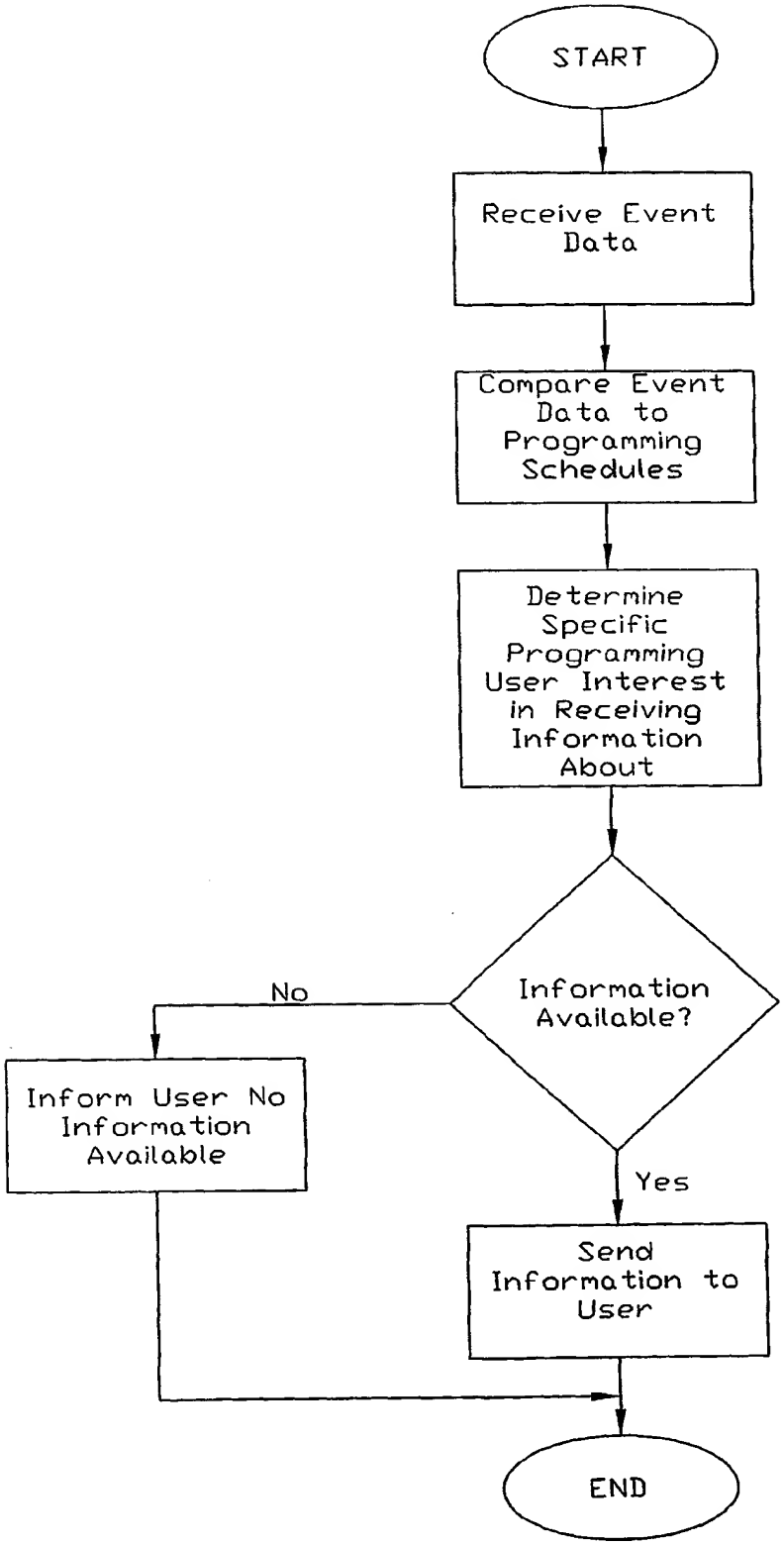

FIG. 16

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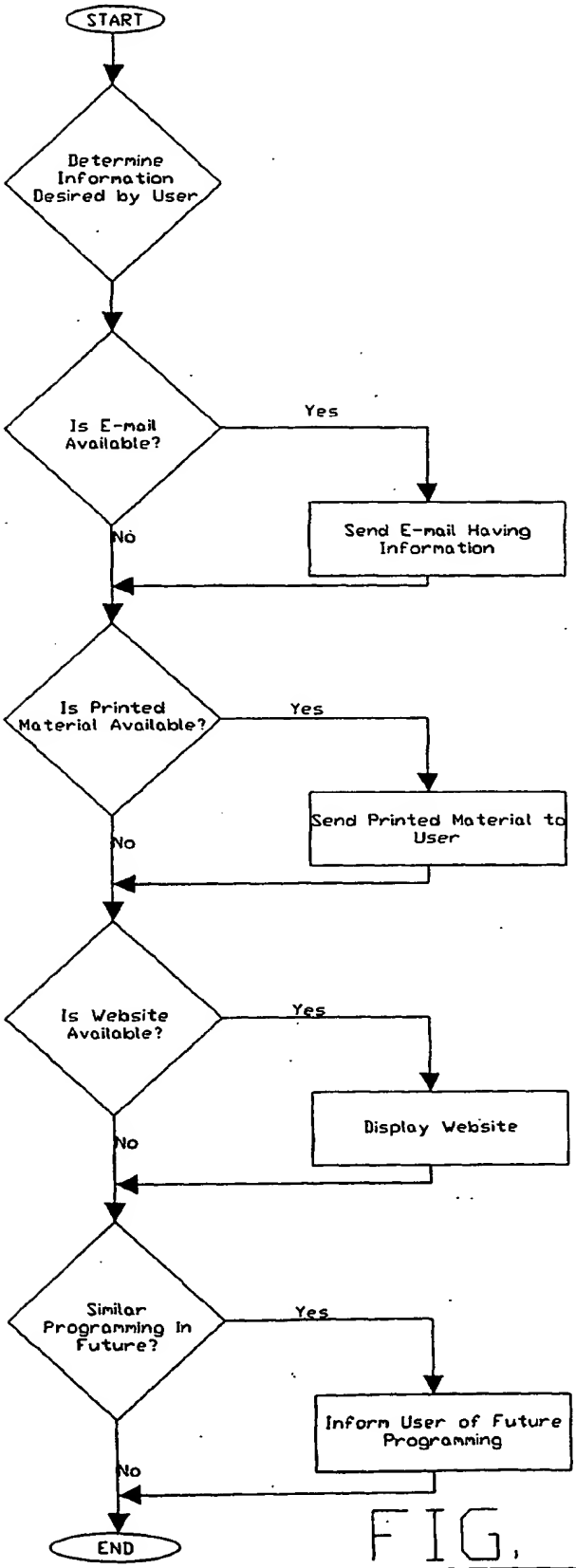

FIG. 17

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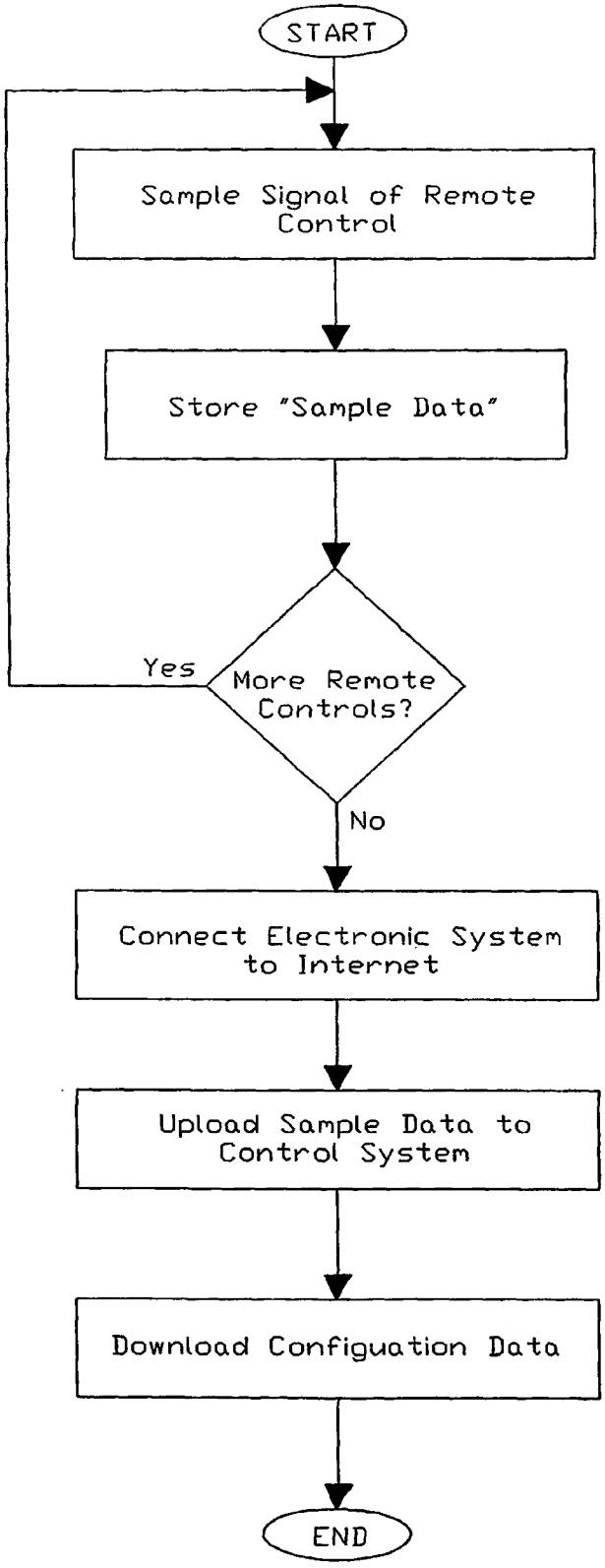

FIG. 18

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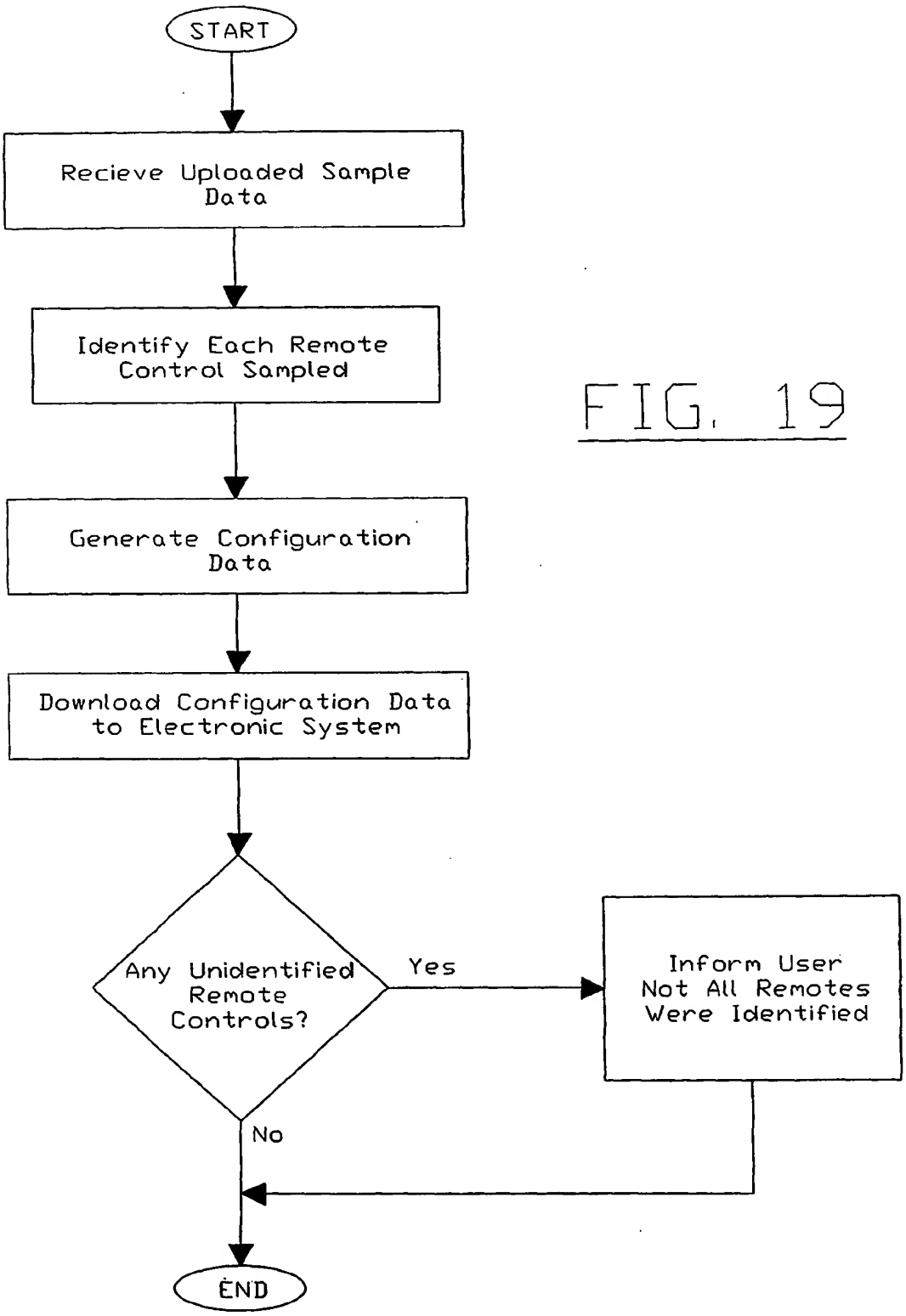

FIG. 19

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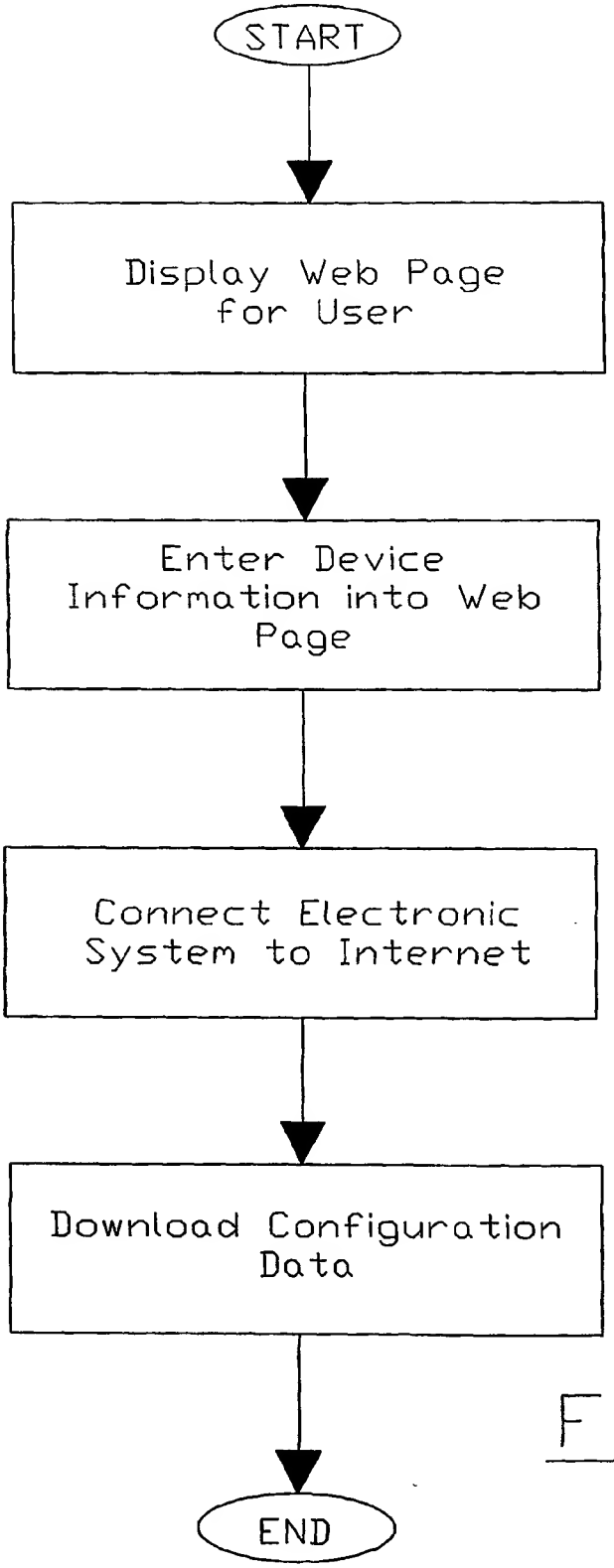

FIG. 20

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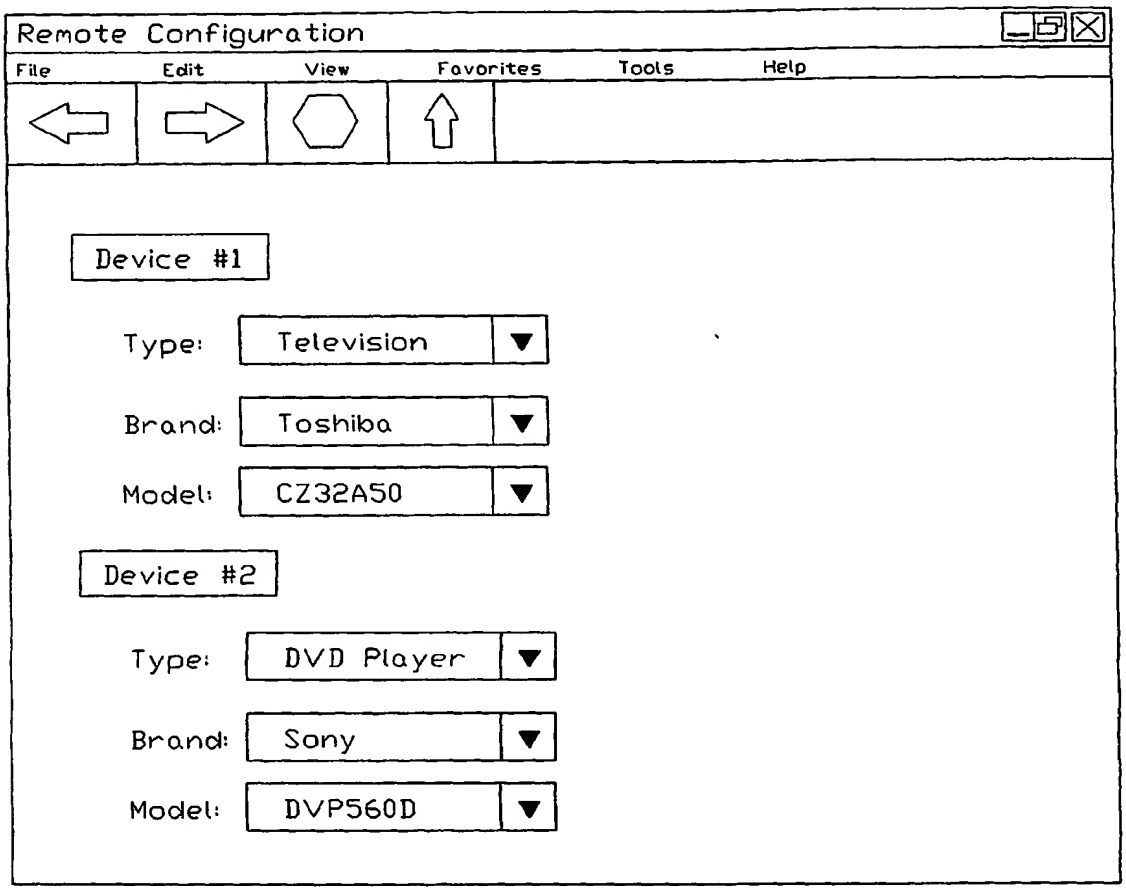

FIG. 21

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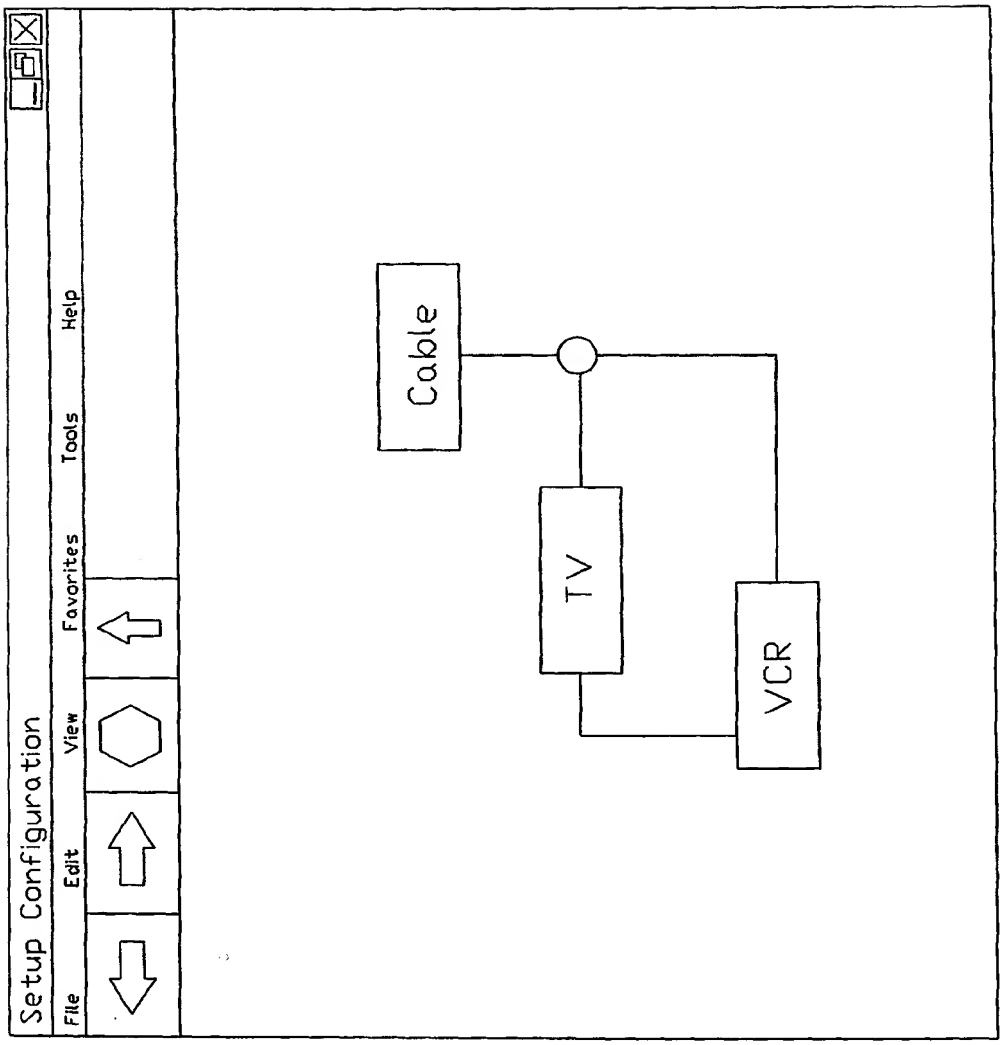
FIG. 22



BNSDOCID: <WO_____0169567A2_I_>

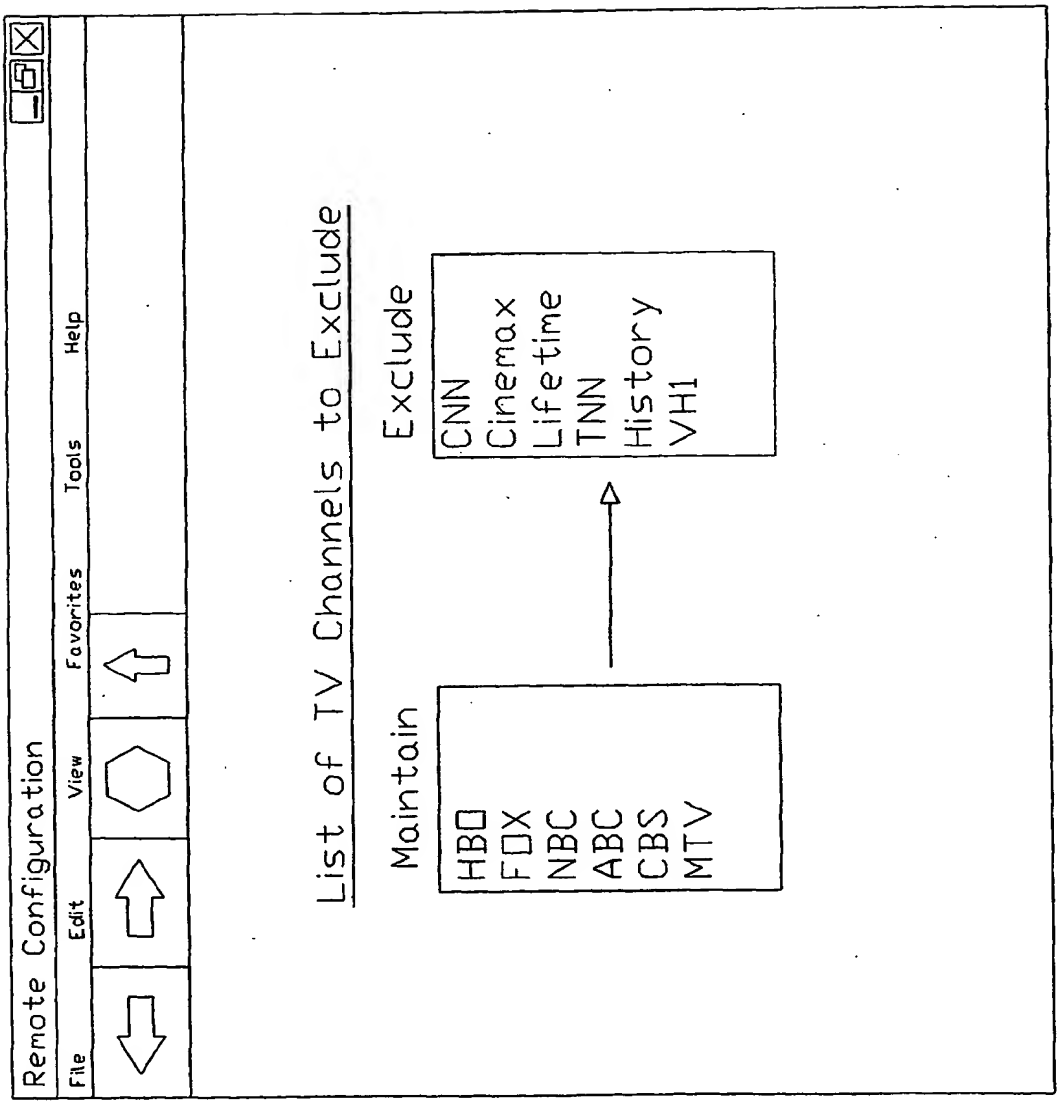


FIG. 23

BNSDOCID: <WO_____0169567A2_I_>

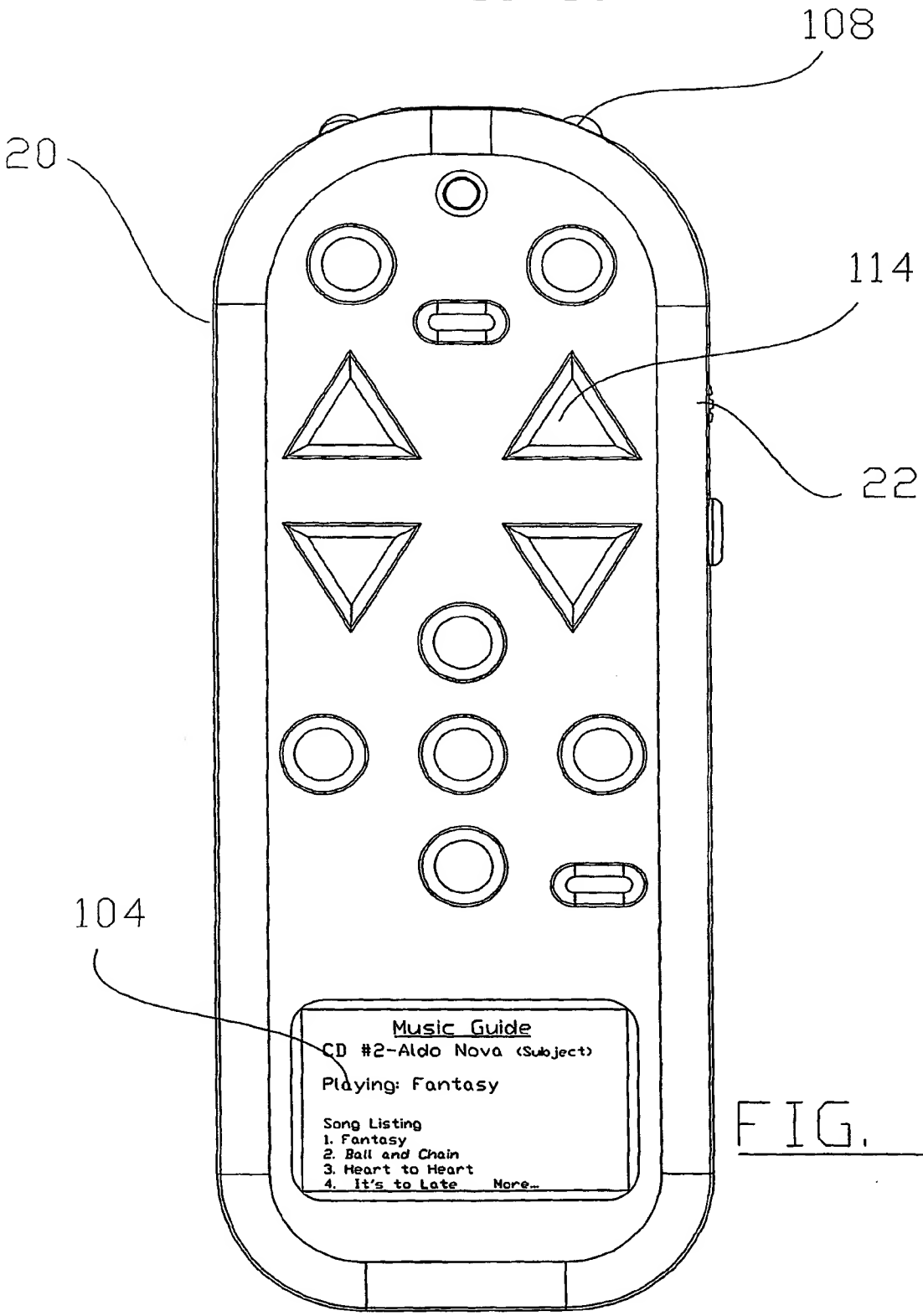


FIG. 24

BNSDOCID: <WO_____0169567A2_I_>

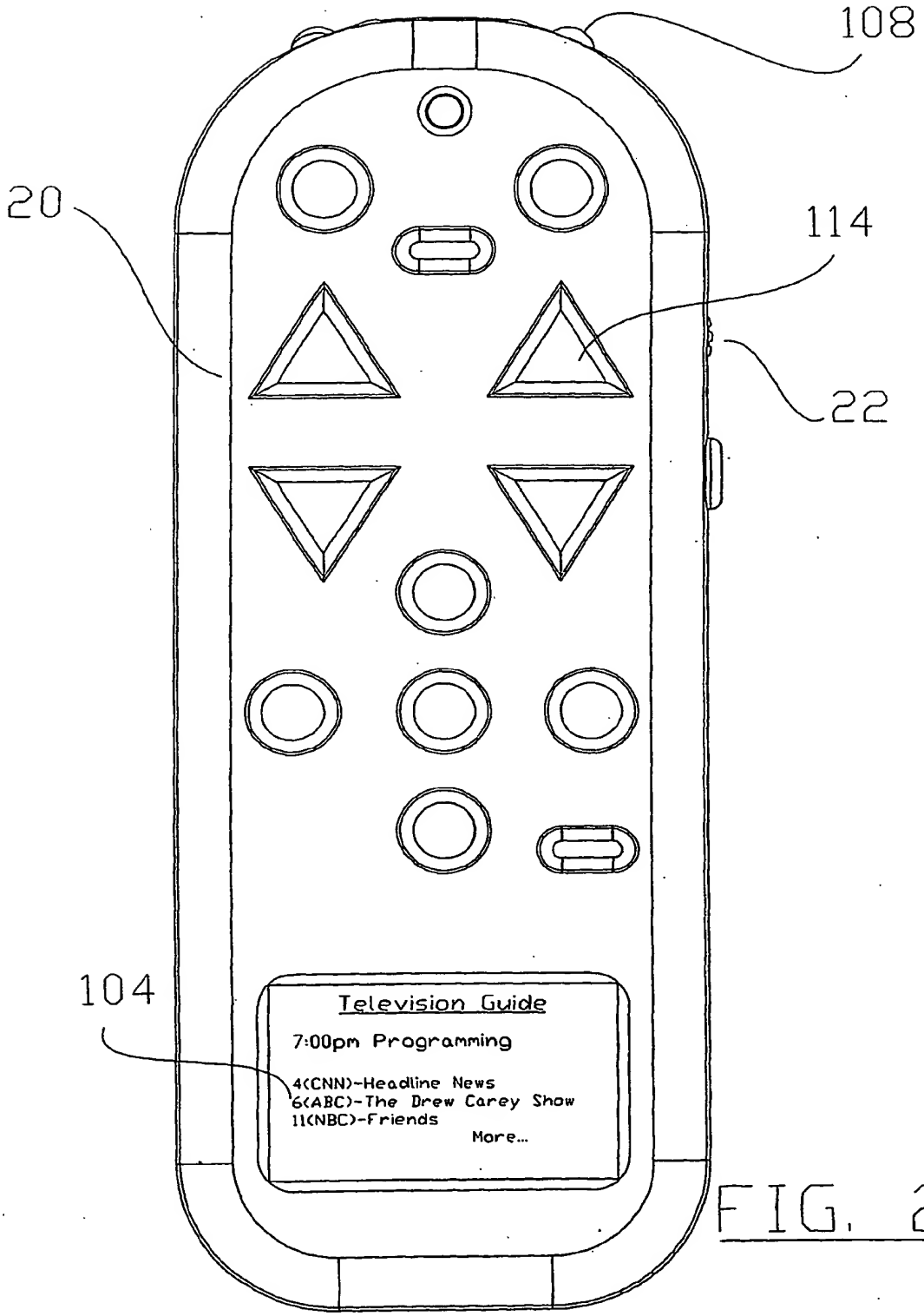


FIG. 25

BNSDOCID: <WO_____0169567A2_I_>

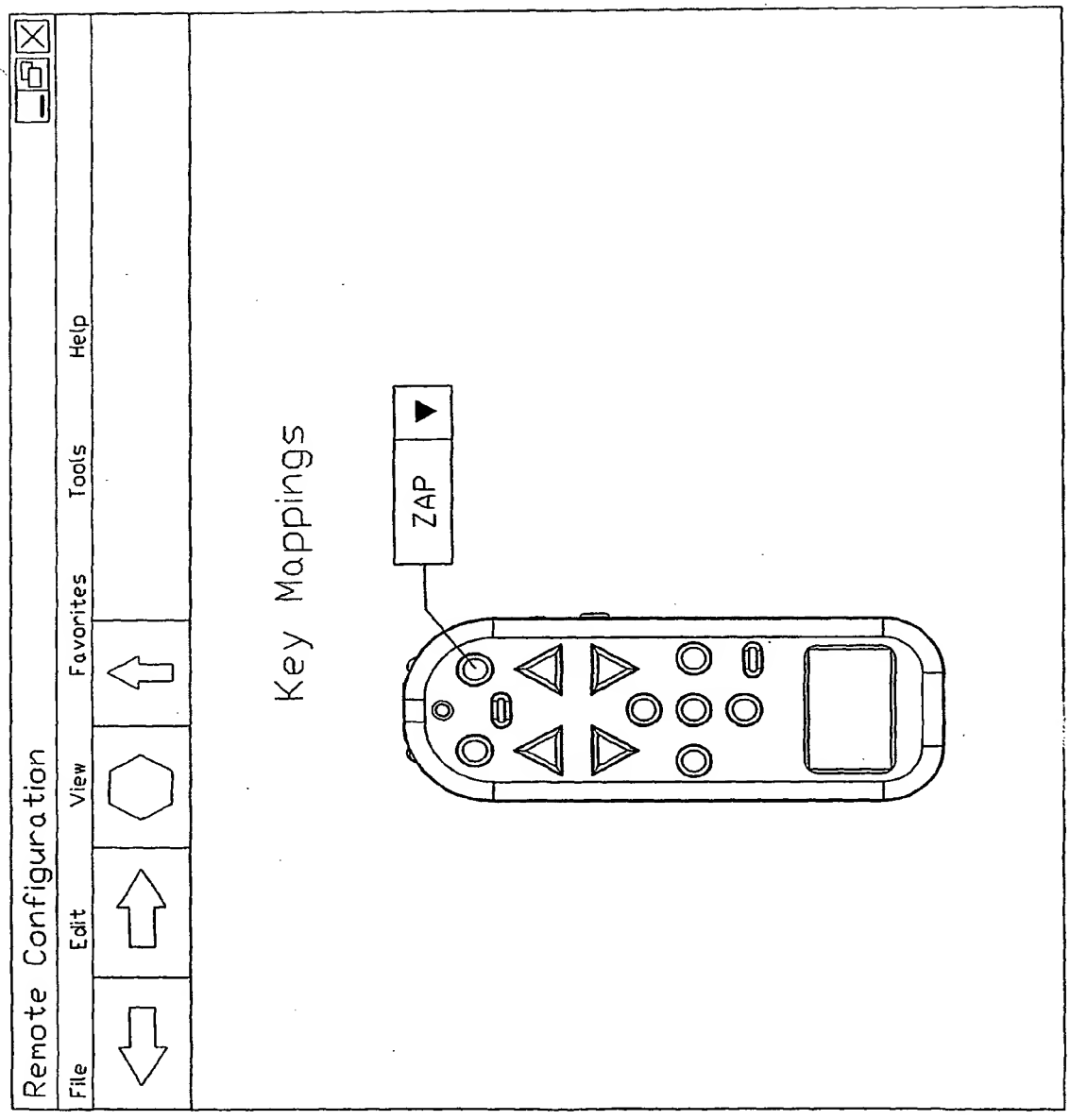


FIG. 26

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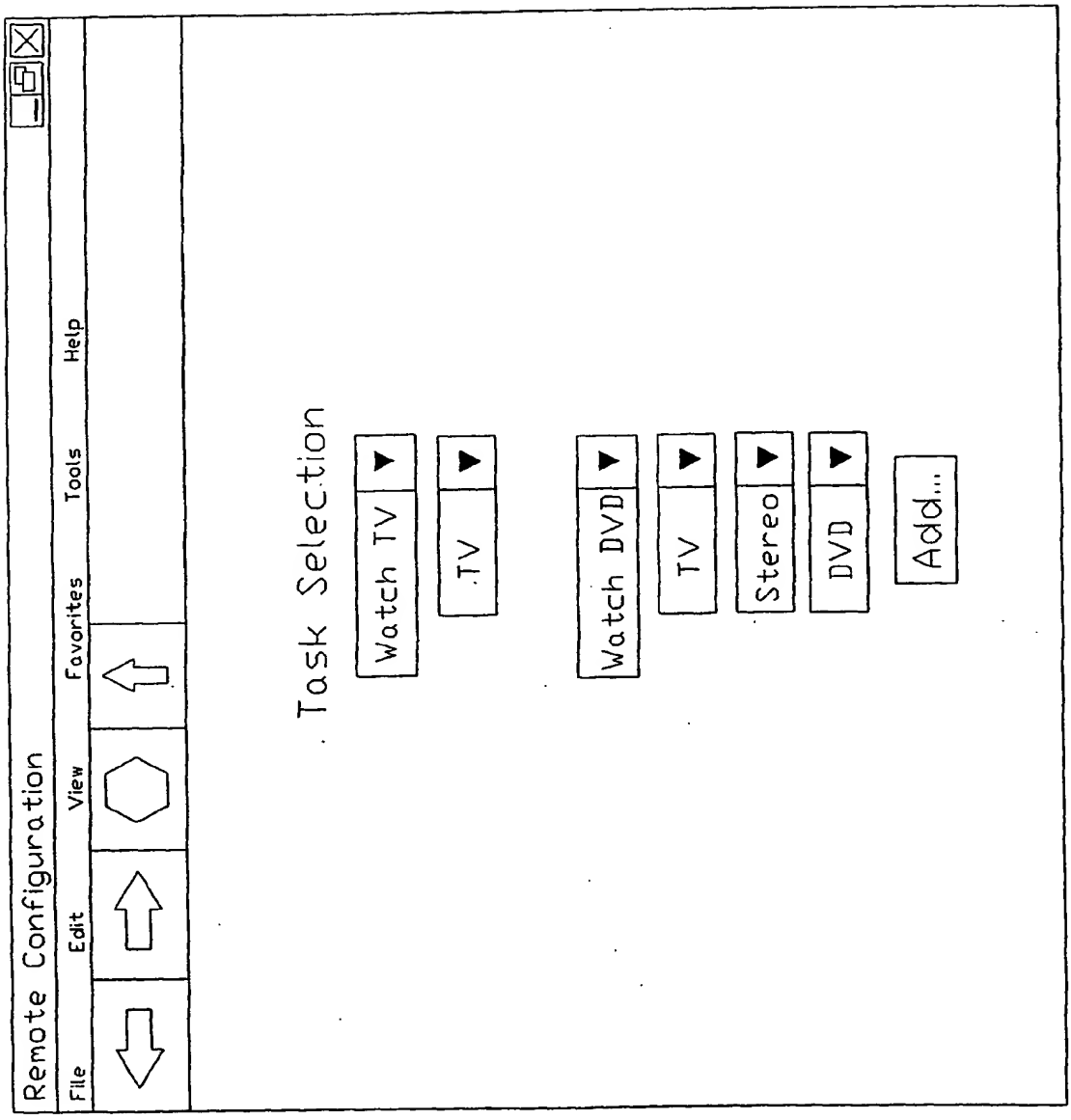

FIG. 27

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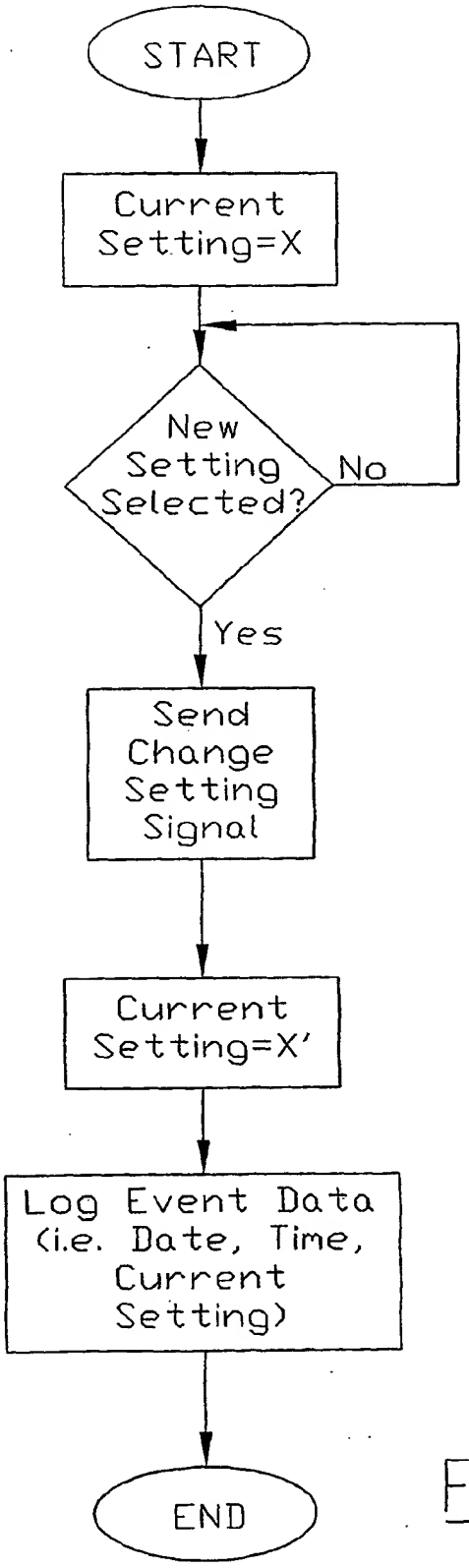

FIG. 28

BNSDOCID: <WO_____0169567A2_I_>

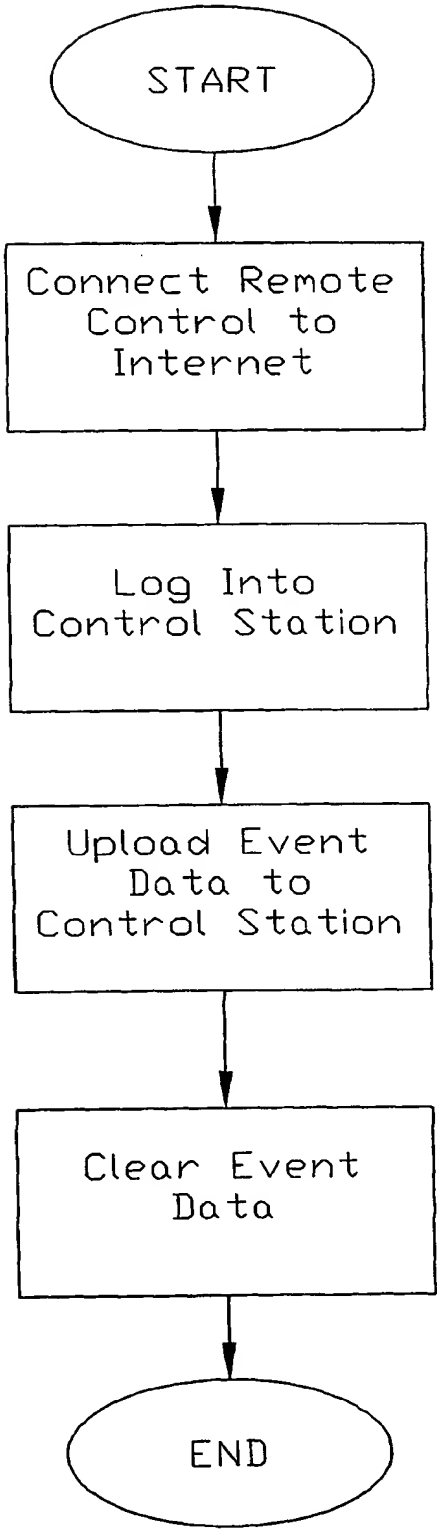

FIG. 29

BNSDOCID: <WO_____0169567A2_I_>

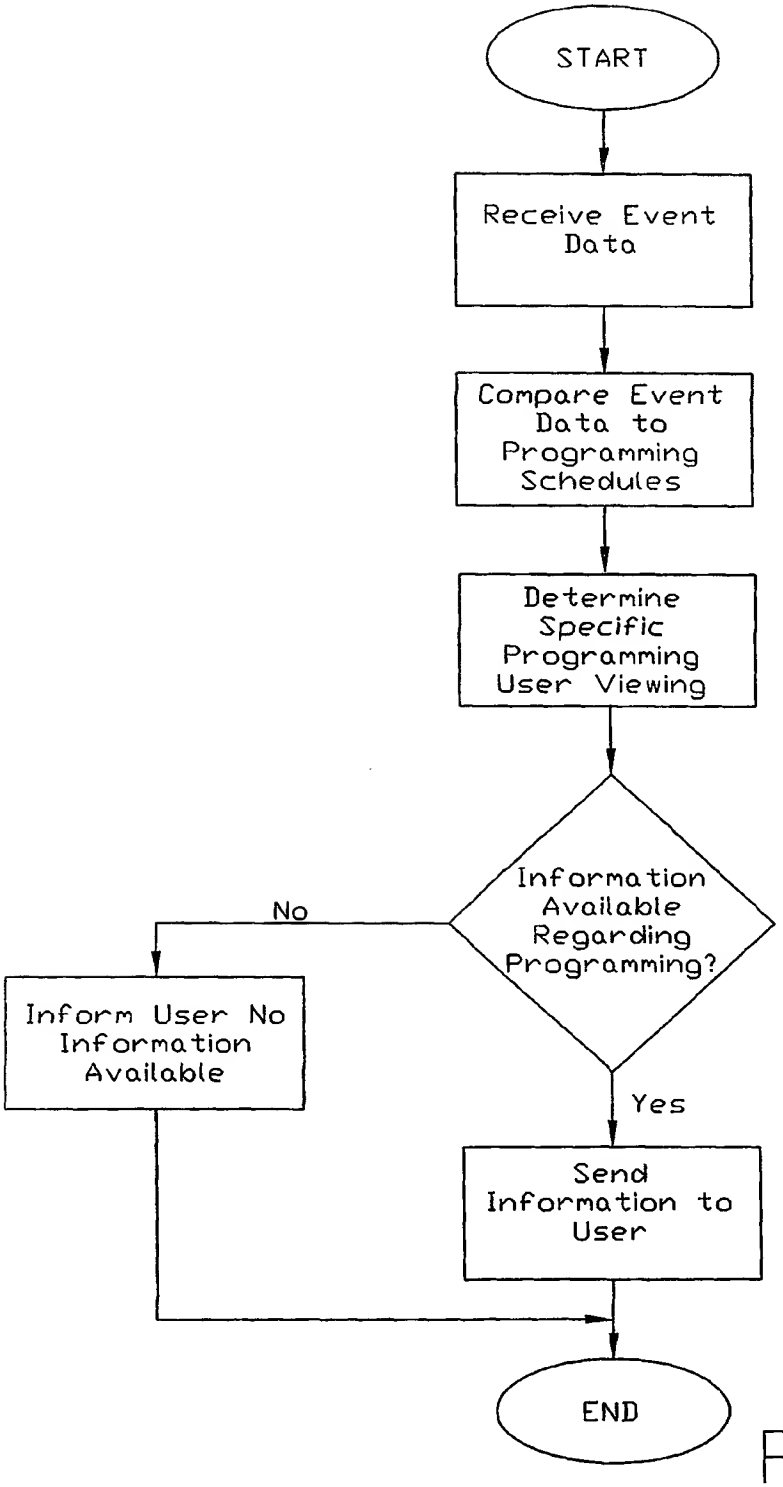

FIG. 30

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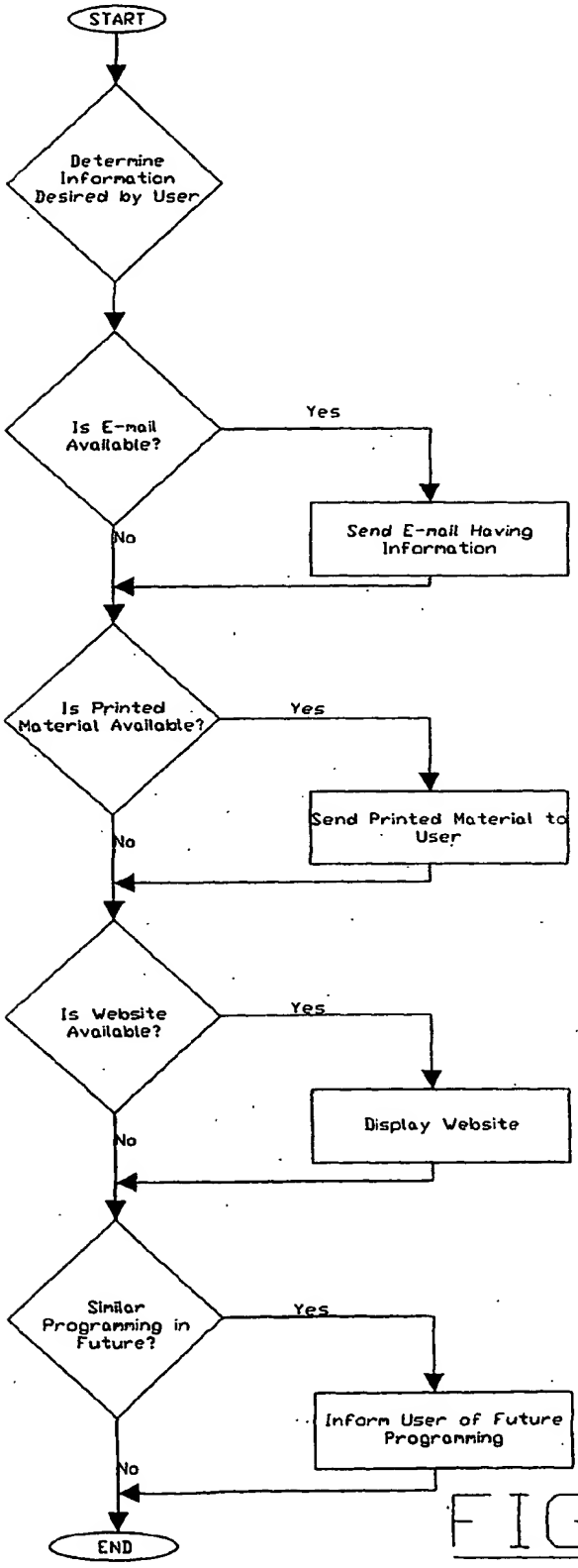


FIG. 31

BNSDOCID: <WO_____0169567A2_I_>

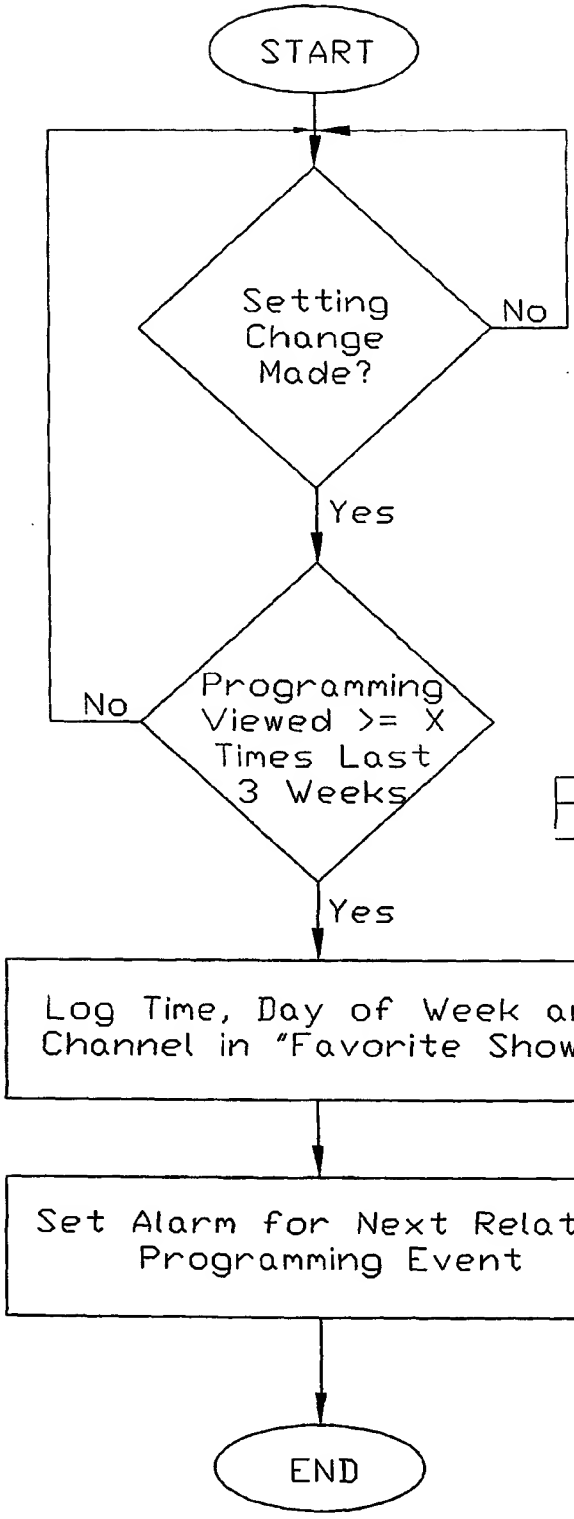
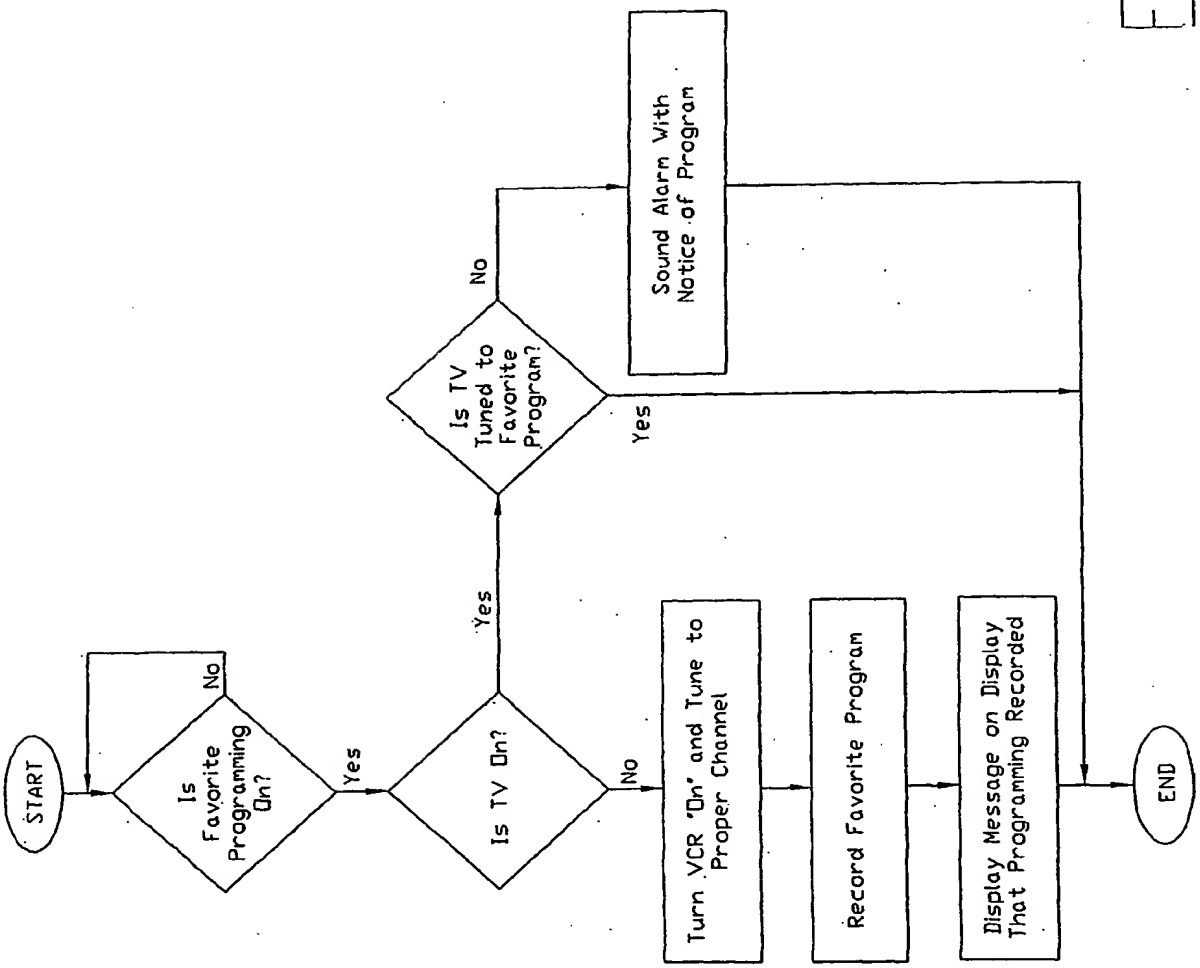


FIG. 32

BNSDOCID: <WO_____0169567A2_I_>

FIG. 33



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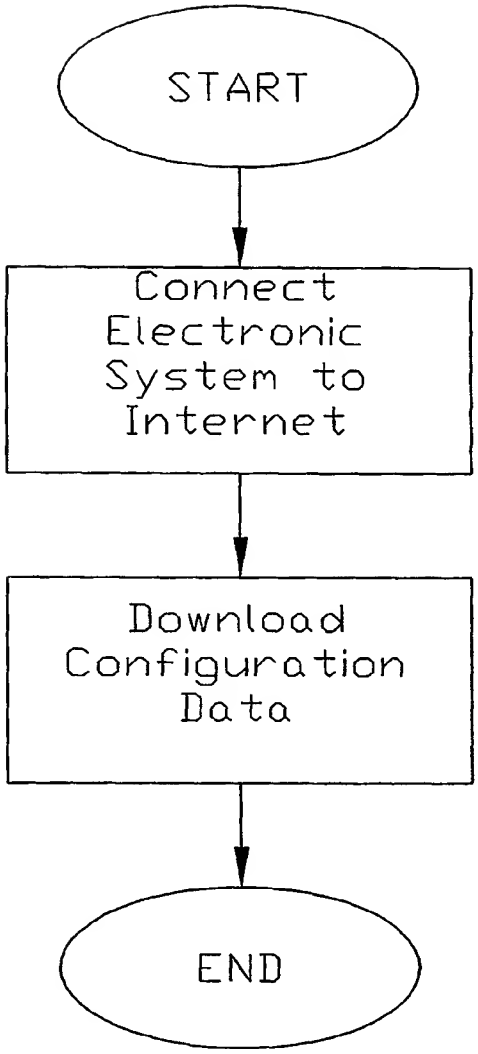

FIG. 34

BNSDOCID: <WO_____0169567A2_I_>

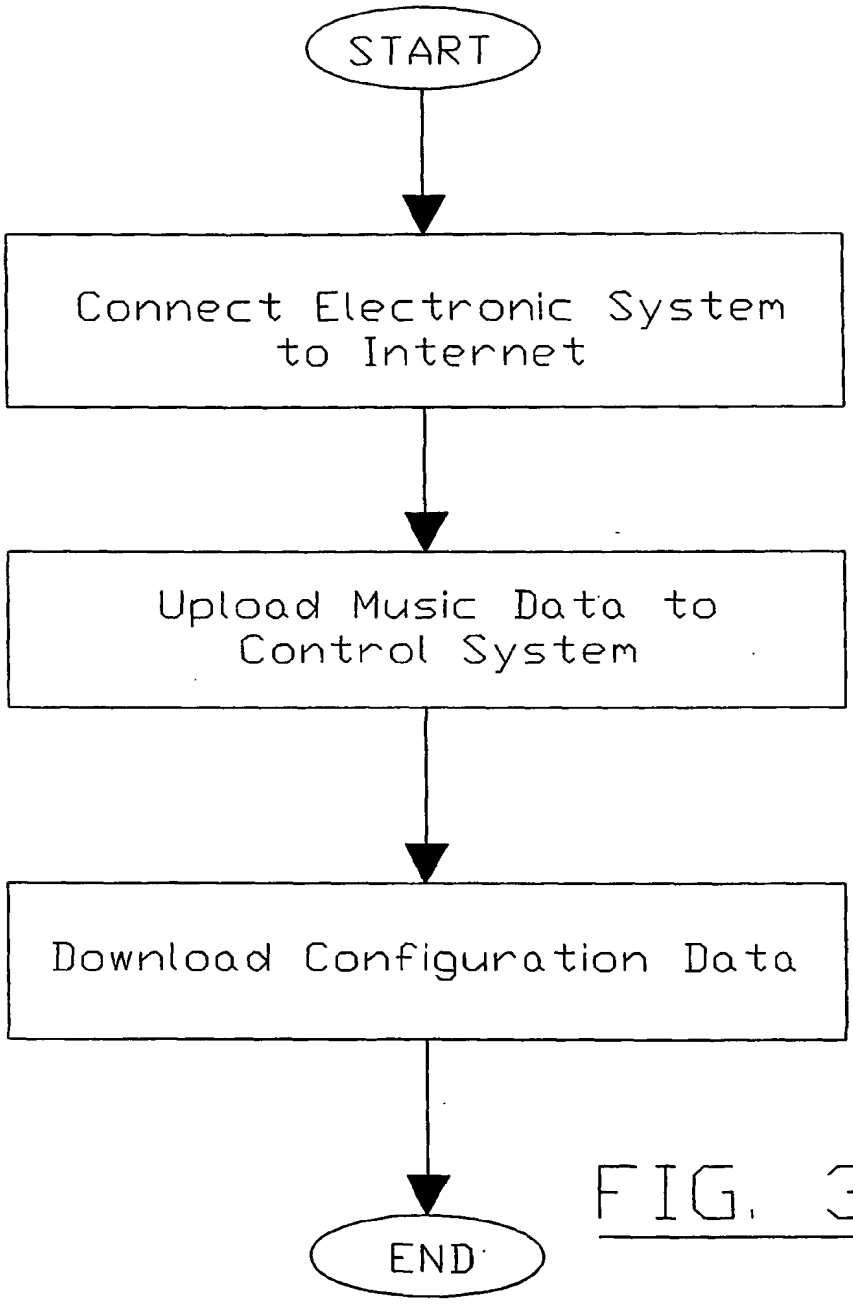

FIG. 35

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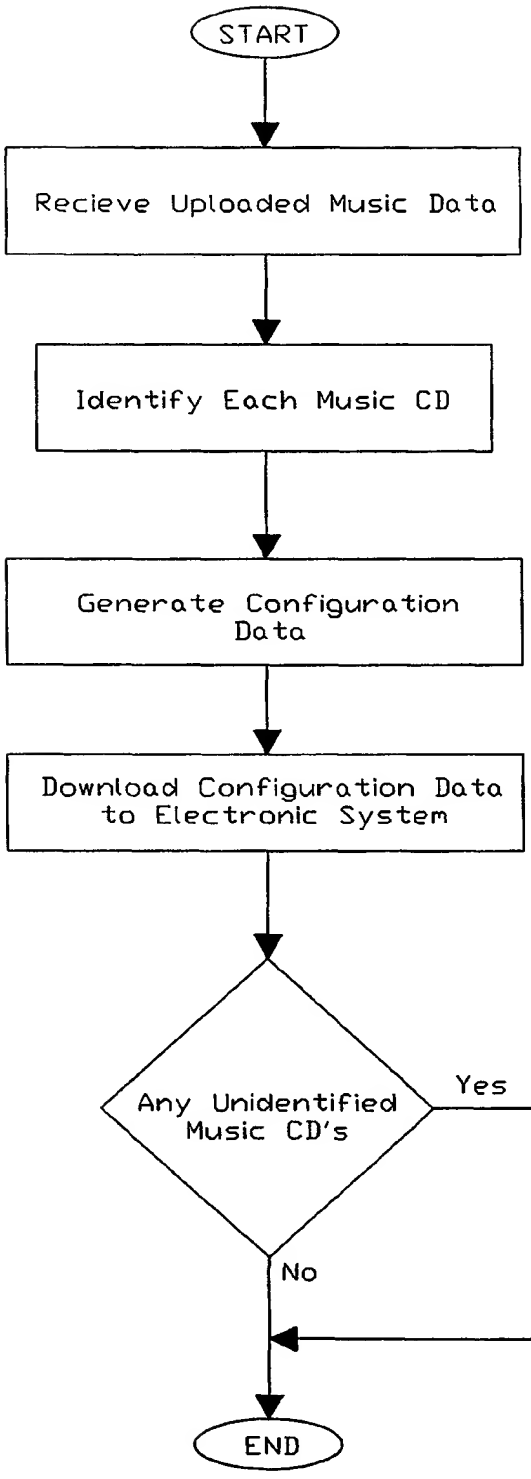

FIG. 36

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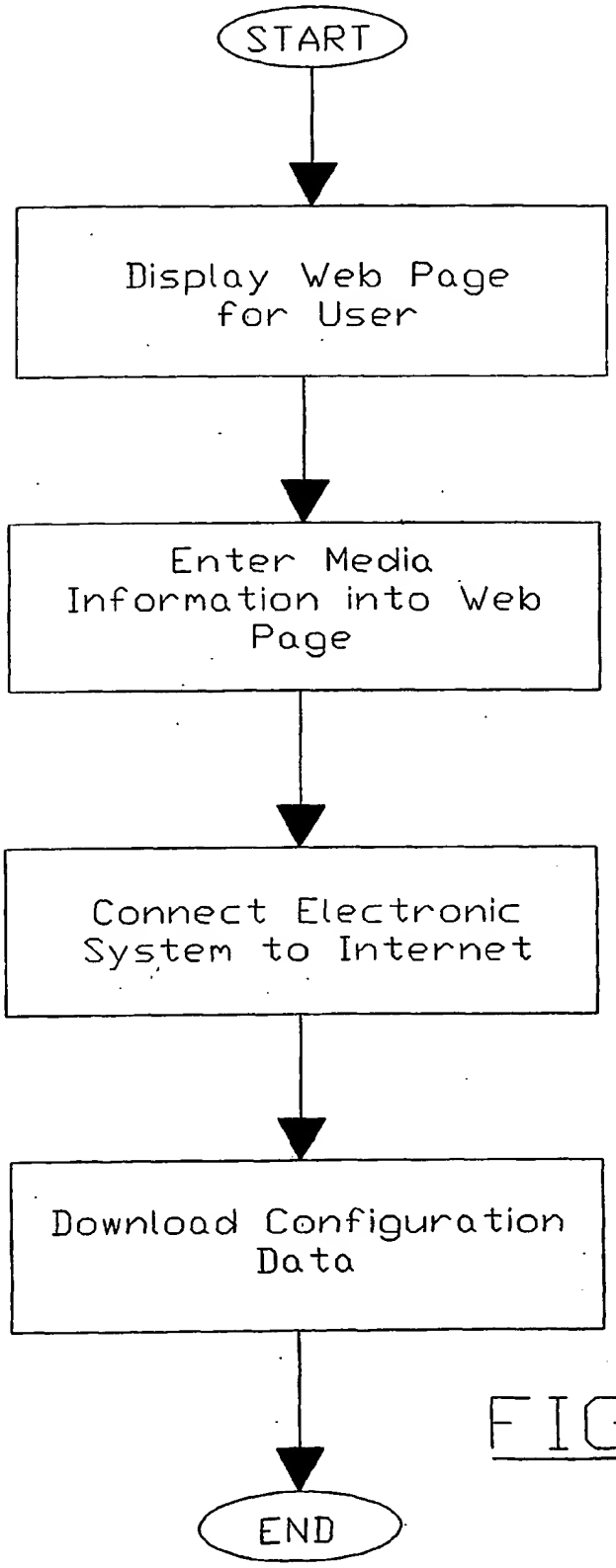

FIG. 37

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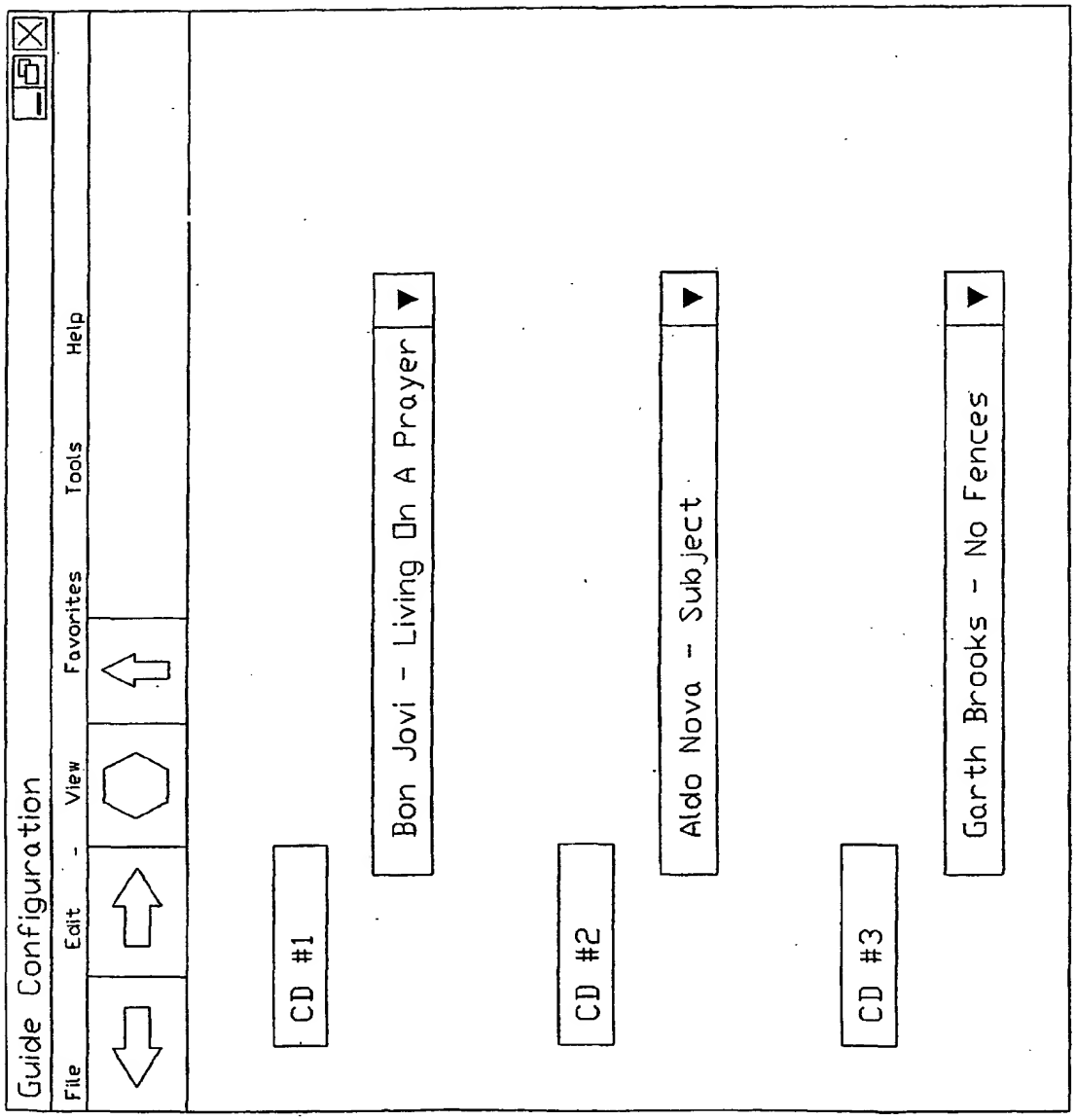

FIG. 38

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HENRY, Justin, M. [CA/CA]; 3125 Fifth Line West, Unit 13, Mississauga, Ontario L5L 3S8 (CA).

(74) Agent: **FRENCH, David, J.**; P.O. Box 2486, Stn. D, Ottawa, Ontario K1P 5W6 (CA).

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Published:
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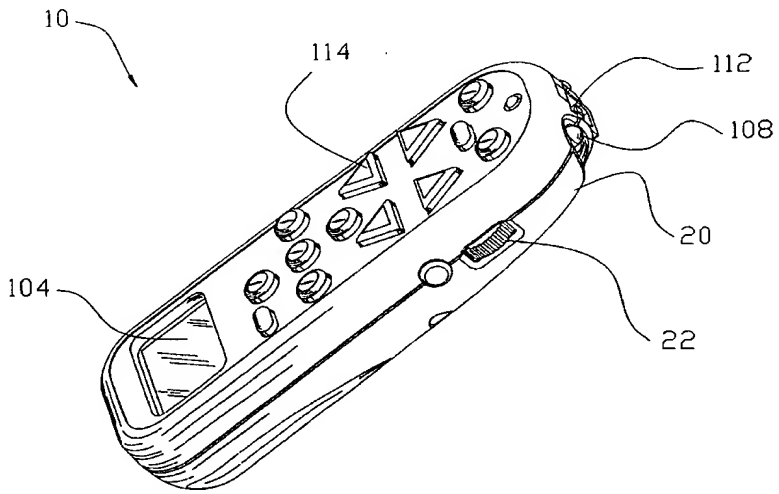
[Continued on next page]

(54) Title: STATE-BASED REMOTE CONTROL SYSTEM



(57) Abstract: A state-based remote control system for providing efficient and simple operation of a plurality of electronic devices as a coordinated system based upon an overall task. The state-based remote control system includes a housing, a keypad in communication with an electronic system contained within the housing, and a communication device in communication with the electronic system for communicating with external electronic devices. The electronic system monitors the buttons selected by a user to determine the state of all external electronic devices that are to be controlled. When the user selects a task (e.g. watch television), the electronic system automatically determines the actions required to achieve the desired task based upon the current state of the external electronic devices. After the task has been fulfilled, the electronic system updates the data to reflect the modified state of the external electronic devices.

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(88) Date of publication of the international search report:
8 August 2002

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INTERNATIONAL SEARCH REPORT

Int ›nal Application No
PC.,/CA 01/00323

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G08C17/02 G08C23/02 G08C23/04 H04N7/173

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 907 322 A (LEVINSON PHILIP D ET AL) 25 May 1999 (1999-05-25)	17-22, 26-29, 32-35, 51-56, 60-63, 68-70
A	column 2, line 37 -column 6, line 2 ---	25,59
X	WO 99 34564 A (VSIS INC) 8 July 1999 (1999-07-08) page 40, line 9 - line 26 page 46, line 5 -page 48, line 28 ---	47-50, 71-89
X	US 5 629 868 A (TESSIER ALAIN ET AL) 13 May 1997 (1997-05-13) column 4, line 29 -column 7, line 43 --- -/--	37-39, 43-46

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
26 March 2002	04 04 2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Pham, P

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 398 550 A (SONY CORP) 22 November 1990 (1990-11-22) column 2, line 31 -column 4, line 17 column 6, line 5 - line 39	1,2,4-8, 10-12, 14,15
Y	column 9, line 42 -column 10, line 11	3,16
X	US 5 943 228 A (KIM KOOK-WON) 24 August 1999 (1999-08-24)	1,2,4,7, 8,10
A	column 4, line 44 -column 5, line 15 column 5, line 62 -column 6, line 51	11,12, 14,15
Y	US 5 949 351 A (HAHM JIN-HO) 7 September 1999 (1999-09-07) column 3, line 56 -column 4, line 14 column 5, line 34 - line 64	3,16
A	KONSTAN J A: "STATE PROBLEMS IN PROGRAMMING HUMAN-CONTROLLED DEVICES" DIGEST OF TECHNICAL PAPERS OF THE INTERNATIONAL CONFERENCE ON CONSUMERELECTRONICS (ICCE). ROSEMONT, JUNE 21 - 23, 1994, NEW YORK, IEEE, US, 21 June 1994 (1994-06-21), pages 122-123, XP000503990 ISBN: 0-7803-1454-9 the whole document	1-16
P,X	EP 1 014 577 A (SHARP KK) 28 June 2000 (2000-06-28) column 4, line 57 -column 10, line 41	1-16

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